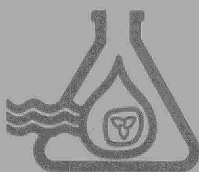


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Drinking Water Surveillance Program

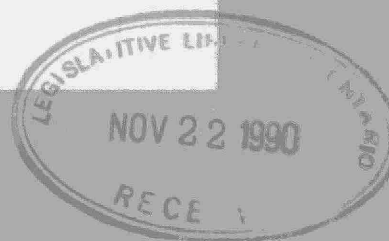
BELLEVILLE WATER TREATMENT PLANT

Annual Report 1987



**Environment
Ontario**

Jim Bradley, Minister



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ISSN 0840-5123

**BELLEVILLE
WATER TREATMENT PLANT**

**DRINKING WATER SURVEILLANCE
PROGRAM**

ANNUAL REPORT 1987

**ONTARIO MINISTRY OF ENVIRONMENT
OCTOBER 1988**

c Queen's Printer for Ontario, 1988

ACKNOWLEDGEMENTS

The Drinking Water Surveillance Program (DWSP) employs a team approach requiring the co-operative effort of the Ministry of the Environment (MOE) staff from Water Resources and Laboratory Services Branch and the Regions, as well as plant operational staff from the Municipalities.

This annual report was produced by the DWSP Group (Ron Hunsinger, Peter Bohm, Carol Sackville-Duyvelshoff, Chris Fung and John McGrachan) and by Pat Lachmaniuk (on developmental assignment to the Drinking Water Section). Helpful input and reviews were received from Drinking Water Section Staff, in addition to reviews by other MOE and municipal personnel.

EXECUTIVE SUMMARY

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE WATER TREATMENT PLANT 1987 ANNUAL REPORT

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. Currently, 44 plants are being monitored.

The Belleville Water Treatment Plant is a conventional treatment plant that treats water from the Bay of Quinte. The treatment process consists of coagulation, flocculation, sedimentation, filtration, fluoridation and disinfection. This plant serves a population of 37,000 and has a design capacity of 54 x 1000m³/day.

Water samples of the raw, treated and three distribution system sites were taken on a monthly basis. Sampling at distribution system Site 1 was discontinued in July and Site 2 was incorporated onto the program. The Belleville Water Treatment Plant was sampled for approximately 160 parameters, 9 times in 1987. Parameters were divided into the following groups: Bacteriological, Inorganic and Physical (Laboratory Chemistry, Field Chemistry and Metals) and Organics (Chloroaromatics, Chlorophenols, Pesticides and PCB, Phenolics, Polynuclear Aromatic Hydrocarbons, Specific Pesticides and Volatiles). Specific Pesticides and Chlorophenols were analysed for in June and November only.

A summary of results is shown in Table 1.

Due to its sampling frequency of once per month, the DWSP is not designed to evaluate all aspects of the bacteriological quality of water; however routine bacteriological monitoring as recommended in the Ontario Drinking Water Objectives (ODWOs) is carried out by the operating authority. In terms of the limited DWSP bacteriological examination the water was of good quality.

Inorganic and Physical parameters (Laboratory Chemistry, Field Chemistry and Metals) were below any applicable health related ODWOs.

Of approximately 110 Organic parameters tested for on a monthly basis, none exceeded health related guidelines.

Many of the substances detected are naturally occurring or treatment by-products.

During 1987 the DWSP sampling results indicated that the Belleville Water Treatment Plant produced good quality water at the plant and this quality was maintained throughout the distribution system.

SOMMAIRE

PROGRAMME DE SURVEILLANCE DE L'EAU POTABLE

STATION D'ÉPURATION DE L'EAU DE BELLEVILLE RAPPORT ANNUEL 1987

Le Programme de surveillance de l'eau potable (PSEP) de l'Ontario fournit des informations immédiates, fiables et à jour sur la qualité de l'eau potable. Le PSEP a débuté officiellement en avril 1986. Il est destiné à englober tous les réseaux municipaux d'alimentation en eau de l'Ontario. Actuellement, 44 stations en font partie.

La station d'épuration de Belleville est une station classique qui traite l'eau de la baie de Quinte. Le traitement comporte la coagulation, la floculation, la décantation, la filtration, la désinfection et la fluoration. Cette station dessert une population d'environ 37 000 habitants et a une capacité nominale de 54 x 1 000 m³/jour.

Des prélèvements d'eau brute et d'eau traitée ainsi qu'en trois points du réseau de distribution ont été effectués chaque mois. L'échantillonnage a été discontinué au site n° 1 en juillet, et le site n° 2 a alors été intégré au programme. Neuf fois en 1987, les prélèvements ont été analysés par rapport à environ 160 paramètres dans les catégories suivantes : bactériologique, inorganique et physique (analyses en laboratoire et sur place, présence de métaux) et organique (composés aromatiques chlorés, chlorophénols, pesticides et BPC, dérivés phénoliques, hydrocarbures aromatiques polynucléaires, pesticides particuliers et composés volatils). Les chlorophénols et les pesticides particuliers n'ont été analysés qu'en juin et en novembre.

Le tableau 1 résume les résultats obtenus.

En raison de la fréquence des prélèvements (un par mois), le PSEP ne permet pas d'évaluer tous les aspects de la qualité bactériologique de l'eau. Cependant, comme on le recommande dans le cadre des objectifs relatifs à la qualité de l'eau potable en Ontario, un contrôle bactériologique est effectué par l'exploitant. L'analyse bactériologique limitée du PSEP a révélé une eau de bonne qualité.

Les mesures des paramètres inorganiques et physiques étaient inférieures aux limites applicables fixées par l'Ontario pour l'eau potable.

Pour environ 110 paramètres organiques mesurés chaque mois, aucun résultat n'a dépassé les limites acceptables fixées pour la santé.

Un grand nombre de substances détectées apparaissent naturellement ou sont des produits dérivés de l'épuration.

Les résultats des analyses effectuées en 1987 dans le cadre du PSEP ont indiqué que la station d'épuration de Belleville donnait une eau de bonne qualité et que cette qualité se maintenait dans tout le réseau de distribution.

TABLE 1

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P.

SUMMARY TABLE BY SCAN (1987)

SCAN	RAW			TREATED			SITE 1			SITE 2			SITE 3		
	TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE
BACTERIOLOGICAL	30	30	100	35	7	20	16	3	18	16	3	18	44	14	31
CHEMISTRY (FLD)	26	26	100	54	54	100	34	34	100	42	42	100	88	88	100
CHEMISTRY (LAB)	153	131	85	171	130	76	131	116	88	165	146	88	329	283	86
METALS	179	91	50	179	82	45	157	85	54	195	119	61	391	216	55
CHLOROAROMATICS	78	0	0	104	0	0	52	2	3	65	0	0	130	1	0
CHLOROPHENOLS	6	0	0	6	0	0	.	.	.	.	.	.	.	.	.
PAH	68	0	0	68	0	0	.	.	.	.	.	.	.	.	.
PESTICIDES & PCB	157	0	0	201	0	0	97	0	0	125	0	0	248	0	0
PHENOLICS	9	1	11	9	0	0	.	.	.	.	.	.	.	.	.
SPECIFIC PESTICIDES	99	0	0	99	0	0	27	0	0	45	0	0	90	0	0
VOLATILES	252	12	4	252	28	11	113	12	10	140	15	10	253	27	10
TOTAL	1057	291		1178	301		627	252		793	325		1573	629	

NO HEALTH RELATED GUIDELINES/LIMITS WERE EXCEEDED

A POSITIVE VALUE DENOTES THAT THE RESULT IS GREATER THAN THE STATISTICAL LIMIT OF DETECTION AND IS QUANTIFIABLE
 A '.' INDICATES THAT NO SAMPLE WAS TAKEN

DRINKING WATER SURVEILLANCE PROGRAM

BELLEVILLE WATER TREATMENT PLANT 1987 ANNUAL REPORT

INTRODUCTION

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. Currently, 44 plants are being monitored. Appendix A contains a detailed description of the DWSP.

The DWSP was initiated at the Belleville Water Treatment Plant in the spring of 1987.

This report contains information and results for 1987.

PLANT DESCRIPTION

The Belleville Water Treatment Plant is a conventional treatment plant which treats water from the Bay of Quinte. The treatment process consists of coagulation, flocculation, sedimentation, filtration and disinfection. This plant serves a population of approximately 37,000 people. It has a design capacity of 54 x 1000m³/day and daily flows ranging from 21 x 1000m³/day to 48 x 1000m³/day.

The plant location is shown in Figure 1. Plant process details, in a block schematic, are shown in Figure 2. General plant information is presented in Table 2.

METHODS

Water samples were obtained from five DWSP approved locations;

- i) Plant Raw - The water originated from the raw water well prior to chlorination and was sampled through a stainless steel line. The sample tap is located in the plant laboratory.
- ii) Plant Treated - The water originated from the clearwell after addition of all treatment chemicals and was sampled through a stainless steel sample line. The sample tap is located in the plant laboratory.
- iii) Distribution System - Site 1 - This house is approximately 3.1 kilometers from the plant. Water was sampled, through copper plumbing, from the basement laundry tap.
- iv) Distribution System - Site 2 - This house is approximately 8.8 kilometers from the plant. Water was sampled, through copper plumbing, from the basement laundry tap.
- v) Distribution System - Site 3 - This house is approximately 1.9 kilometers from the plant. Water was sampled, through copper plumbing, from the basement laundry tap.

FIGURE 1

DRINKING WATER SURVEILLANCE PROGRAM ANNUAL REPORT

SITE LOCATION MAP

LOCATION: BELLEVILLE WATER TREATMENT PLANT



Figure 2 BELLEVILLE WATER TREATMENT PLANT

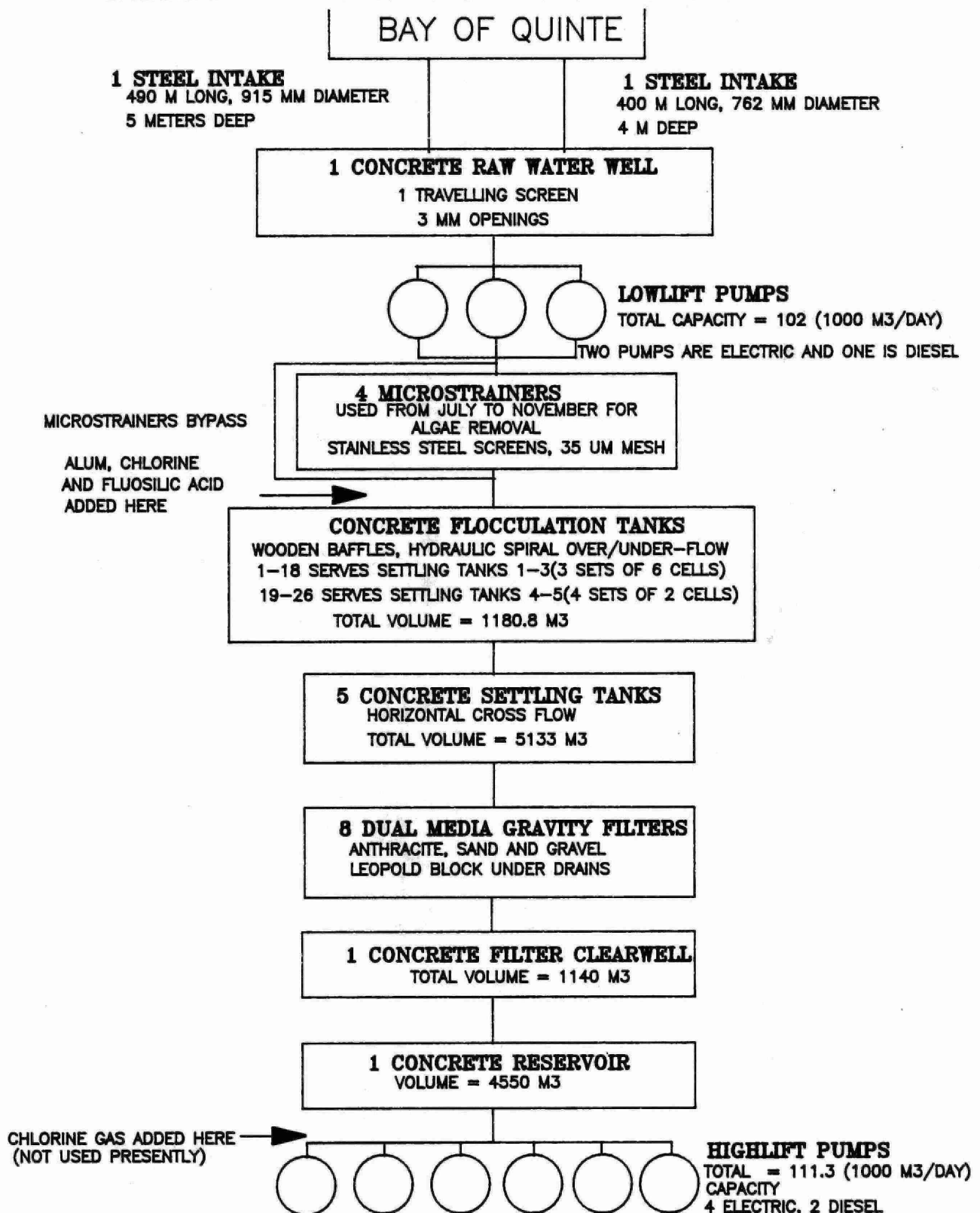


TABLE 2

DRINKING WATER SURVEILLANCE PROGRAM ANNUAL REPORT
GENERAL INFORMATION

BELLEVILLE WATER TREATMENT PLANT

<u>LOCATION:</u>	SIDNEY STREET BELLEVILLE, ONTARIO (827-966-3651)
<u>SOURCE:</u>	RAW WATER SOURCE - BAY OF QUINTE
<u>DESIGN CAPACITY:</u>	54.5 (1000 M3/DAY)
<u>OPERATION:</u>	MUNICIPALITY
<u>PLANT SUPERINTENDENT:</u>	D. MIDDLETON
<u>MINISTRY REGION:</u>	SOUTHEASTERN
<u>DISTRICT OFFICER:</u>	J. PRUNER

<u>MUNICIPALITY SERVED</u>	<u>POPULATION</u>
BELLEVILLE	36,720

Sample lines in the plant were flushed prior to sampling to ensure that the water obtained was indicative of its origin and not residual water standing in the sample line.

At all distribution system locations two types of samples were obtained: a standing and a free flow. The standing sample consisted of water that had been in the household plumbing and service connection for a minimum of six hours. These samples are used to make an assessment of the amount by which the levels of inorganic compounds and metals may be changed on standing, due to leaching from (or deposition on), the plumbing system. The only analyses carried out on these samples therefore, were the General Chemistry and Metals scans. The free flow sample represented fresh water from the distribution main that had been flowing for five minutes before the sample was taken.

Attempts were made to capture the same block of water at each sampling point by taking the retention time into consideration. The retention time was calculated by dividing the volume of water between the two sampling points by the sample day flow. For example, if it was determined that the retention time within the plant was five hours then there would be a five hour interval between the raw and treated sampling. Similarly, if it was estimated that it took approximately one day for the water to travel from the plant to the distribution system site, this site would be sampled one day after the treated water from the plant.

Stringent DWSP sampling protocols were followed to eliminate any variance (Appendix B).

Sample day flow, treatment chemical dosages and field measurements such as Turbidity, Chlorine Residuals, pH and Temperature were recorded on the day of sampling and were entered onto the DWSP data base as submitted.

RESULTS

The Belleville Water Treatment Plant was sampled for approximately 160 parameters on a monthly basis. The Distribution system sampling was initiated in March. Sampling at the plant was initiated in May when the new DWSP sample lines were complete.

Distribution system Site 1 was sampled four times and then was discontinued in July. Site 2 was incorporated onto the program and sampled five times. Site 3 was sampled ten times. The raw and treated water was sampled twice in September and nine times during the year.

The Specific Pesticides and Chlorophenols groups were sampled for in June and November only. Polynuclear Aromatic Hydrocarbons and Phenolics are only analysed for in the raw and treated water at the plant.

Table 3 contains information on the sample day retention time, flow rate and treatment chemicals used and their associated dosages.

Table 4 is a summary break-down of the number of water samples analysed for by parameter and by water type. The number of times that a positive or trace result was detected is also reported.

Positive denotes that the result is greater than the statistical limit of detection established by the Ministry of the Environment (MOE) laboratory staff and is quantifiable. Trace (<T) denotes that the level measured is greater than the lowest value detectable by the method but lies so close to the detection limit that it cannot be confidently quantified.

Table 5 presents the results for parameters detected on at least one occasion.

Table 6 presents parameters not detected.

Associated guidelines and detection limits are also supplied on both tables. Parameters are listed alphabetically within each scan.

DISCUSSION

Water quality is judged by comparison with the Ontario Drinking Water Objectives (ODWOs) as defined in the 1984 publication (ISBN 0-7743-8985-0). The Province of Ontario has health related and aesthetic objectives for 49 parameters, these are currently under review. When an ODWO is not available guidelines/limits from other agencies are consulted. The Parameters Listing System

(PALIS) recently initiated by the MOE catalogues and keeps current over 1750 guidelines for 650 parameters from agencies throughout the world.

As stated under Results, traces do not indicate quantifiable results as defined by established MOE laboratory analytical reporting protocols. While they can be useful in trend analysis or confirmation of the presence of a specific contaminant that is repeatedly detected at these levels, the occasional finding of a trace level of a contaminant is not considered to be significant. DISCUSSION OF GUIDELINES AND LIMITS THEREFORE, IS ONLY CONDUCTED ON POSITIVE RESULTS.

Bacteriology

Positive results for the Bacteriology scan were present seven times in the treated water, three times in the distribution system Site 1 water, three times in the Site 2 water and fourteen times in the Site 3 water. In all cases the positive parameters were Standard Plate Count, Total Coliform and/or Total Coliform Background. No ODWOs were exceeded.

Total Coliforms were detected by the membrane filtration test at 1 count/100 mL in the September distribution system Site 3 free flow sample.

Aeromonas organisms were present in the Presence/Absence test for the August distribution system Site 3 water.

Due to its sampling frequency of once per month, the DWSP is not designed to evaluate all aspects of the bacteriological quality of water. Routine bacteriological monitoring as recommended in the ODWOs is carried out by the operating authority. Water from the Belleville Water Treatment Plant, in terms of the limited DWSP bacteriological examination, was of good quality.

Inorganic and Physical Parameters

Laboratory and Field Chemistry

The results for the Laboratory Chemistry and Field Chemistry scans were below all health related ODWOs.

Turbidity in water is caused by the presence of suspended matter such as clay, silt, colloidal particles, plankton and other microscopic organisms. The most important potential health effect of Turbidity is its interference with disinfection in the treatment plant and maintenance of a chlorine residual. The ODWO of 1 Formazin Turbidity Unit (FTU) is only applicable to treated water leaving the plant.

The September treated water sample contained a Field Turbidity of 2.8 FTU, above the ODWO of 1.0 FTU. The corresponding Laboratory Turbidity determined on this sample was 0.29 FTU. Plant personnel measure turbidity on a routine basis. The plant measured Turbidities for that day ranged from 0.2 - 0.3 FTU. The 2.8 FTU result could therefore, be due to a transcription error while filling in the submission sheet and should not be treated as a reliable result.

There are ODWOs that are set for parameters which are related to aesthetic quality rather than health, one of these is Organic Nitrogen. Organic Nitrogen is calculated by subtracting the Ammonia (Ammonium Total) value from the Total Kjeldahl Nitrogen (Nitrogen Tot Kjeld) value. In a number of the treated water samples and distribution system Site 1 and 2 samples Organic Nitrogen values exceeded the aesthetic ODWO of 0.15 mg/L. When Organic Nitrogen exceeds 0.15 mg/L in treated water some taste and odour problems can result.

This guideline is exceeded in most supplies. Based on the information obtained from the DWSP, which generally indicates no problems with this parameter exceedence, the guideline may be modified when the ODWOs are reviewed.

Colour was above the aesthetic ODWO of 5.00 True Colour Units (TCU) once in a free flow sample from distribution system Site 1 and once in a free flow sample from Site 2. Colour in drinking water may be due to the presence of natural or synthetic organic substances as well as certain metallic ions.

As part of the treatment process, Fluosilic Acid is added to the treated water (Table 3). Where fluoridation is practiced, the fluoride concentration recommended in the ODWO is 1.2 mg/L, plus or minus 0.2 mg/L. Maintenance of this level can be observed in the Fluoride levels in all the treated and distribution samples.

It is desirable that the Temperature of drinking water be less than 15°C; the palatability of water is enhanced by its coolness. A temperature below 15°C will tend to reduce the growth of nuisance organisms and hence minimize associated taste, colour, odour and corrosion problems. The desired ODWO was exceeded in many of the treated water and distribution system samples.

Metals

The results reported for the Metal scan were all below any health related ODWOs.

Copper, Iron, Uranium and Manganese levels were lower in the treated water as compared to the raw water. This is a result of the treatment process. The addition of Alum as a coagulant to the raw water and the resulting coagulation/settling process has been shown to reduce the levels of most metals.

Elevated levels of Copper, Nickel, Lead and Zinc were detected in the standing samples as compared to the free flow distribution samples thus, indicating that these metals were leached from the household plumbing as the water stood overnight.

At present, there is no evidence that Aluminum is physiologically harmful and no health limit has been specified. The ODWO indicates that a useful guideline is to maintain a residual below 0.1 mg/L as Al in the water leaving the plant to avoid any significant post precipitation problems. The measure of residual Aluminum in the treated water is important to indicate efficiency of the treatment process. Aluminum values exceeded the ODWO

operational guideline on seven occasions in the treated water.

Mercury levels were erratic. Over the past year in the DWSP it has been observed that potassium dichromate, used to preserve Mercury samples, has a limited shelf-life and may show false positives for the presence of Mercury. As the preservative deteriorates the Mercury levels increase due to interferences and preservatives are replaced.

Organic Parameters

Chloroaromatics

The results of the Chloroaromatics scan showed that six parameters were detected:

- 1,2,3,-Trichlorobenzene
- 1,3,5-Trichlorobenzene
- 1,2,3,4-Tetrachlorobenzene
- Hexachloroethane
- 2,3,6-Trichlorotoluene
- Pentachlorobenzene

1,2,3-Trichlorobenzene was detected at a trace level, once in the distribution system Site 1 water.

1,3,5-Trichlorobenzene was detected at a trace level, once in the distribution system Site 3 sample.

1,2,3,4-Tetrachlorobenzene was detected at a trace level, once in the treated water.

Hexachloroethane was detected at trace levels, once in both the distribution system Site 1 and Site 3 water. Positive results were detected in the March samples from the distribution system Site 1 and 3 at 12.00 ng/l and 14.00 ng/l, respectively. Both values are well below the United States Environmental Protection Agency's Ambient Water Quality (AWQ) guideline of 1,900 ng/l. The AWQ guideline is designed to ensure that surface water, used as a drinking water source and from which fish are consumed, does not contain the substance at a level that would be hazardous to human health. Since both water and fish consumption are considered, the AWQ guideline is usually more stringent than any corresponding drinking water guideline.

2,3,6-Trichlorotoluene was detected in the April distribution system Site 1 sample at a value of 56.00 ng/l. At present no known health related drinking water objective exists for this parameter, although a request for guideline assessment has been submitted to Health and Welfare Canada via the Federal/Provincial Sub-Committee on Drinking Water Quality.

Pentachlorobenzene was detected at a trace level, once in the distribution system Site 1 water.

Review of these results, along with information from other water supplies on DWSP, would indicate that certain Chloroaromatics appear more frequently in the treated water and distribution system water than in the raw and almost always only at trace levels. These occurrences could possibly be due to a reaction

of chlorine with organics present in the water or the distribution system.

Chlorophenols

The results of the Chlorophenols scan showed that no Chlorophenols were detected.

Pesticides and PCB (Polychlorinated Biphenyls)

The results of the Pesticides and PCB scan showed that three pesticides were detected:

Alpha BHC

Lindane

Mirex

Lindane consists of several isomers of BHC (Benzene Hexachloride). Alpha BHC is the isomer most predominantly found in waters in the Great Lakes Basin as indicated in results from other water supplies on DWSP.

Alpha BHC was detected at trace levels, twice in the raw water, five times in the treated water, twice in the distribution system Site 1 and 2 water and five times in the Site 3 water.

Lindane was detected at trace levels three times in the treated water, once in the distribution system Site 1 water and twice in the Site 3 water.

Mirex was detected once at a trace level, in the distribution system Site 3 water.

Specific Pesticides

Results of the Specific Pesticides scan showed that no parameters were detected.

Phenolics

Phenolics were detected at trace levels, four times in the raw and seven times in the treated water. One positive result was detected in the December treated water sample at a value of 1.2 ug/L. This value is below the aesthetic ODWO of 2.0 ug/l. Phenolic compounds are present in the aquatic environment as a result of natural and/or industrial processes.

Polynuclear Aromatic Hydrocarbons (PAH)

The results of the PAH scan showed that no PAHs were detected.

Volatiles

The results of the Volatiles scan showed that two parameters, other than Trihalomethanes (THMs), were detected:

Toluene

Ethylbenzene

Toluene was detected at trace levels, twice in the treated water and once in both the distribution system Site 2 and 3 waters.

Ethylbenzene was detected at a trace level, once in the treated water.

These volatiles are typically found on an occasional basis at

other water supplies included on the DWSP, usually at trace levels.

THMs are acknowledged to be produced during the water treatment process and will always occur in chlorinated surface waters. THMs are comprised mainly of Chloroform, Chlorodibromomethane and Dichlorobromomethane. Bromoform occurs occasionally. Results are reported for the individual compounds as well as for total THMs.

Chloroform, Dichlorobromomethane and Total THMs were always detected in the treated water samples and in all distribution system water samples. Chlorodibromomethane was detected seven times in the treated water, twice in the distribution system Site 1 water, three times in the Site 2 water and four times in the Site 3 water. All THM occurrences were well below the ODWO of 350 ug/l for Total THMs.

THMs were present at very low levels in seven of the raw water samples. This would indicate that low levels of chlorine were present in these samples.

CONCLUSIONS

The Belleville Water Treatment plant for the sample year of 1987 produced good quality water at the plant and this was maintained throughout the distribution system.

No health related guidelines, for organic or inorganic parameters, were exceeded during 1987.

RECOMMENDATIONS

Two recommendations can be made and are as follows:

1) The data base should be reviewed in consultation with Regional, Plant and DWSP personnel to determine if sampling location, sampling frequency and the number of parameters analysed could be revised to allow for a more efficient characterization of the water.

2) During 1987 seven raw water samples contained low levels of THMs. This sample site should be reassessed to ensure that it still meets the DWSP sampling protocol.

TABLE 3

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P.

SAMPLE DAY CONDITIONS

TREATMENT CHEMICAL DOSAGES (MG/L)

DATE	RETENTION TIME(HRS)	FLOW (1000 M3)	PRE-CHLORINATION	COAGULATION	FLUORIDATION
			CHLORINE	ALUM LIQUID	FLUOSILIC ACID
JAN 02	6.5	26.3	3.70	30.00	1.25
FEB 07	6	24	3.30	36.00	1.29
MAY 04	4.0	27.0	4.20	36.70	1.40
JUN 08	5.0	27.3	4.30	37.00	1.34
JUL 06	5.4	38.3	4.50	38.00	1.30
AUG 04	3.5	32.0	5.20	38.00	1.27
SEP 08	4.0	29.5	4.70	37.00	1.20
SEP 24	4.0	25.4	4.80	37.00	1.30
OCT 06	4.0	26.5	4.00	36.50	1.30
NOV 02	4.0	26.8	3.25	36.50	1.30
DEC 15	4.0	26.4	3.00	35.50	1.27

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P.

SUMMARY TABLE OF RESULTS (1987)

CAN	PARAMETER	RAW			TREATED			SITE 1			SITE 2			SITE 3		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
BACTERIOLOGICAL	AEROMONAS SP	.	.	.	.	.	.	.	.	.	.	.	.	1	1	0
	COLIFORM	.	.	.	.	.	.	.	.	.	.	.	.	1	0	0
	ESCHERICHIA COLI BY PRESENCE/ABSENCE	.	.	.	.	.	.	.	.	.	.	.	.	1	0	0
	FECAL COLIFORM	.	.	.	.	.	.	.	.	.	.	.	.	1	0	0
	FECAL COLIFORM MEMBRANE FILTRATION	8	8	0	.	.	.	.	.	.	.	.	.	1	0	0
	P/A BOTTLE	.	.	.	9	0	0	4	0	0	4	0	0	10	1	0
	STANDARD PLATE COUNT MEMBRANE FILT.	6	6	0	8	5	0	4	3	0	4	3	0	9	6	0
	STAPH AUREUS	.	.	.	.	.	.	.	.	.	.	.	.	1	0	0
	TOTAL COLIFORM BACKGROUND MF	8	8	0	9	2	0	4	0	0	4	0	0	10	5	0
	TOTAL COLIFORM MEMBRANE FILTRATION	8	8	0	9	0	0	4	0	0	4	0	0	10	1	0
TOTAL SCAN BACTERIOLOGICAL		30	30	0	35	7	0	16	3	0	16	3	0	44	14	0
TOTAL GROUP BACTERIOLOGICAL		30	30	0	35	7	0	16	3	0	16	3	0	44	14	0
CHEMISTRY (FLD)	FIELD COMBINED CHLORINE RESIDUAL	.	.	.	9	9	0	7	7	0	2	2	0	13	13	0
	FIELD FREE CHLORINE RESIDUAL	.	.	.	9	9	0	7	7	0	10	10	0	15	15	0
	FIELD PH	9	9	0	9	9	0	7	7	0	10	10	0	20	20	0
	FIELD TEMPERATURE	9	9	0	9	9	0	6	6	0	10	10	0	20	20	0
	FIELD TOTAL CHLORINE RESIDUAL	.	.	.	9	9	0	7	7	0	10	10	0	20	20	0
	FIELD TURBIDITY	8	8	0	9	9	0	.	.	.	.	.	.	.	.	.
TOTAL SCAN CHEMISTRY (FLD)		26	26	0	54	54	0	34	34	0	42	42	0	88	88	0
CHEMISTRY (LAB)	ALKALINITY	8	8	0	9	9	0	8	8	0	10	10	0	20	20	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P.

SUMMARY TABLE OF RESULTS (1987)

CAN	PARAMETER	SITE			SITE			SITE 1			SITE 2			SITE 3		
		TOTAL	RAW	POSITIVE	TREATED	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
CHEMISTRY (LAB)	AMMONIUM TOTAL	8	7	1	9	7	2	8	8	0	10	10	0	20	17	3
	CALCIUM	8	8	0	9	9	0	8	8	0	10	10	0	20	20	0
	CHLORIDE	8	8	0	9	9	0	8	8	0	10	10	0	20	20	0
	COLOUR	8	8	0	9	9	0	8	8	0	10	10	0	20	19	1
	CONDUCTIVITY	8	8	0	9	9	0	8	8	0	10	10	0	20	20	0
	CYANIDE	9	0	0	9	0	0	3	0	0	5	0	0	9	0	0
	FLUORIDE	8	8	0	9	9	0	8	8	0	10	10	0	20	20	0
	HARDNESS	8	8	0	9	9	0	8	8	0	10	10	0	20	20	0
	MAGNESIUM	8	8	0	9	9	0	8	8	0	10	10	0	20	20	0
	NITRITE	8	5	3	9	1	6	8	0	8	10	0	9	20	1	16
	NITROGEN TOTAL KJELDAHL	8	8	0	9	9	0	8	8	0	10	10	0	20	20	0
	PH	8	8	0	9	9	0	8	8	0	10	10	0	20	20	0
	PHOSPHORUS FIL REACT	8	6	2	9	2	5	-	-	-	-	-	-	-	-	-
	PHOSPHORUS TOTAL	8	7	0	9	2	4	-	-	-	-	-	-	-	-	-
	SODIUM	8	8	0	9	9	0	8	8	0	10	10	0	20	20	0
	TOTAL NITRATES	8	2	5	9	1	7	8	4	3	10	6	2	20	6	12
	TOTAL SOLIDS	8	8	0	9	9	0	8	8	0	10	10	0	20	20	0
	TURBIDITY	8	8	0	9	9	0	8	8	0	10	10	0	20	20	0
TOTAL SCAN CHEMISTRY (LAB)		153	131	11	171	130	24	131	116	11	165	146	11	329	283	32
METALS	ALUMINUM	9	9	0	9	9	0	8	8	0	10	10	0	20	20	0
	ARSENIC	9	0	0	9	0	0	8	0	0	10	0	0	20	1	0
	BARIUM	9	9	0	9	9	0	8	8	0	10	10	0	20	20	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P.

SUMMARY TABLE OF RESULTS (1987)

CAN	PARAMETER	SITE			TREATED			SITE 1			SITE 2			SITE 3		
		RAW			TOTAL POSITIVE TRACE			TOTAL POSITIVE TRACE			TOTAL POSITIVE TRACE			TOTAL POSITIVE TRACE		
METALS	BERYLLIUM	9	0	0	9	0	0	8	0	0	10	0	0	20	0	0
	BORON	9	0	6	9	0	8	8	2	2	10	0	9	20	1	13
	CADMIUM	9	1	0	9	0	0	8	1	0	10	1	0	20	0	0
	CHROMIUM	9	5	0	9	3	0	8	3	0	10	6	0	20	11	0
	COBALT	9	1	0	9	2	0	8	2	0	10	2	0	20	5	0
	COPPER	9	8	0	9	2	0	8	8	0	10	10	0	20	20	0
	CYANIDE	-	-	-	-	-	-	1	0	0	-	-	-	1	0	0
	IRON	9	9	0	9	9	0	8	8	0	10	10	0	20	20	0
	LEAD	9	2	0	9	2	0	8	3	0	10	10	0	20	10	0
	MANGANESE	9	9	0	9	9	0	8	8	0	10	10	0	20	20	0
	MERCURY	8	7	0	8	8	0	4	4	0	5	5	0	10	10	0
	MOLYBDENUM	9	0	0	9	0	0	8	0	0	10	2	0	20	0	0
	NICKEL	9	1	0	9	2	0	8	3	0	10	8	0	20	14	0
	SELENIUM	9	0	0	9	0	0	8	0	0	10	0	0	20	0	0
	STRONTIUM	9	9	0	9	9	0	8	8	0	10	10	0	20	20	0
	URANIUM	9	8	1	9	8	1	8	8	0	10	8	0	20	18	2
	VANADIUM	9	6	0	9	6	0	8	4	0	10	7	0	20	9	0
	ZINC	9	7	0	9	4	0	8	7	0	10	10	0	20	17	0
TOTAL SCAN METALS		179	91	7	179	82	9	157	85	2	195	119	9	391	216	15
TOTAL GROUP INORGANIC & PHYSICAL		358	248	18	404	266	33	322	235	13	402	307	20	808	587	47
HLCROAROMATICS	123 TRICHLOROBENZENE	6	0	0	8	0	0	4	0	1	5	0	0	10	0	0
	1234 TETRACHLOROBENZENE	6	0	0	8	0	1	4	0	0	5	0	0	10	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P.

SUMMARY TABLE OF RESULTS (1987)

CAN	PARAMETER	SITE			RAW			TREATED			SITE 1			SITE 2			SITE 3		
		TOTAL POSITIVE TRACE			TOTAL POSITIVE TRACE			TOTAL POSITIVE TRACE			TOTAL POSITIVE TRACE			TOTAL POSITIVE TRACE			TOTAL POSITIVE TRACE		
CHLOROAROMATICS	1235 TETRACHLOROBENZENE	6	0	0	8	0	0	4	0	0	5	0	0	10	0	0			
	124 TRICHLOROBENZENE	6	0	0	8	0	0	4	0	0	5	0	0	10	0	0			
	1245 TETRACHLOROBENZENE	6	0	0	8	0	0	4	0	0	5	0	0	10	0	0			
	135 TRICHLOROBENZENE	6	0	0	8	0	0	4	0	0	5	0	0	10	0	1			
	236 TRICHLOROTOLUENE	6	0	0	8	0	0	4	1	0	5	0	0	10	0	0			
	245 TRICHLOROTOLUENE	6	0	0	8	0	0	4	0	0	5	0	0	10	0	0			
	26A TRICHLOROTOLUENE	6	0	0	8	0	0	4	0	0	5	0	0	10	0	0			
	HEXACHLOROBUTADIENE	6	0	0	8	0	0	4	0	0	5	0	0	10	0	0			
	HEXACHLOROETHANE	6	0	0	8	0	0	4	1	1	5	0	0	10	1	1			
	OCTACHLOROSTYRENE	6	0	0	8	0	0	4	0	0	5	0	0	10	0	0			
	PENTACHLOROBENZENE	6	0	0	8	0	0	4	0	1	5	0	0	10	0	0			
TOTAL SCAN CHLOROAROMATICS		78	0	0	104	0	1	52	2	3	65	0	0	130	1	2			
CHLOROPHENOLS	234 TRICHLOROPHENOL	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	2345 TETRACHLOROPHENOL	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	2356 TETRACHLOROPHENOL	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	245-TRICHLOROPHENOL	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	246-TRICHLOROPHENOL	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	PENTACHLOROPHENOL	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
TOTAL SCAN CHLOROPHENOLS		6	0	0	6	0	0	0	0	0	0	0	0	0	0	0			
ESTICIDES & PCB	ALACHLOR	8	0	0	8	0	0	3	0	0	5	0	0	10	0	0			

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P.

SUMMARY TABLE OF RESULTS (1987)

SCAN	PARAMETER	SITE			SITE			SITE 1			SITE 2			SITE 3		
		RAW			TREATED			TOTAL POSITIVE TRACE			TOTAL POSITIVE TRACE			TOTAL POSITIVE TRACE		
PESTICIDES & PCB	ALDRIN	6	0	0	8	0	0	4	0	0	5	0	0	10	0	0
	ALPHA BHC	6	0	2	8	0	5	4	0	2	5	0	2	10	0	5
	ALPHA CHLORDANE	6	0	0	8	0	0	4	0	0	5	0	0	10	0	0
	ATRATONE	8	0	0	8	0	0	3	0	0	5	0	0	10	0	0
	BETA BHC	6	0	0	8	0	0	4	0	0	5	0	0	10	0	0
	DICHLORODIPHENYLDICHLOROETHANE	6	0	0	8	0	0	4	0	0	5	0	0	10	0	0
	DIELDRIN	6	0	0	8	0	0	4	0	0	5	0	0	10	0	0
	ENDRIN	6	0	0	8	0	0	4	0	0	5	0	0	10	0	0
	ETHYLENE DIBROMIDE	9	0	0	9	0	0	3	0	0	5	0	0	8	0	0
	GAMMA CHLORDANE	6	0	0	8	0	0	4	0	0	5	0	0	10	0	0
	HEPTACHLOR	6	0	0	8	0	0	4	0	0	5	0	0	10	0	0
	HEPTACHLOR EPOXIDE	6	0	0	8	0	0	4	0	0	5	0	0	10	0	0
	HEXACHLOROBENZENE	6	0	0	8	0	0	4	0	0	5	0	0	10	0	0
	LINDANE	6	0	0	8	0	3	4	0	1	5	0	0	10	0	2
	METHOXYCHLOR	6	0	0	8	0	0	4	0	0	5	0	0	10	0	0
	MIREX	6	0	0	8	0	0	4	0	0	5	0	0	10	0	1
	O,P-DDT	6	0	0	8	0	0	4	0	0	5	0	0	10	0	0
	OXYCHLORDANE	6	0	0	8	0	0	4	0	0	5	0	0	10	0	0
	PCB	6	0	0	8	0	0	4	0	0	5	0	0	10	0	0
	PPDE	6	0	0	8	0	0	4	0	0	5	0	0	10	0	0
	PPDT	6	0	0	8	0	0	4	0	0	5	0	0	10	0	0
	THIODAN I	6	0	0	8	0	0	4	0	0	5	0	0	10	0	0
	THIODAN II	6	0	0	8	0	0	4	0	0	5	0	0	10	0	0
	THIODAN SULPHATE	6	0	0	8	0	0	4	0	0	5	0	0	10	0	0
*TOTAL SCAN PESTICIDES & PCB		157	0	2	201	0	8	97	0	3	125	0	2	248	0	8

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P.

SITE

[illegible]

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P.

SUMMARY TABLE OF RESULTS (1987)

SCAN	PARAMETER	SITE														
		RAW			TREATED			SITE 1			SITE 2			SITE 3		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE

SPECIFIC PESTICIDES																
		1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	2,4 D PROPIONIC ACID	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	2,4,5-T	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	2,4-D	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	24-DICHLOROPHENOXYBUTYRIC	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	AMETRYNE	8	0	0	8	0	0	3	0	0	5	0	0	10	0	0
	AMINOCARB	0	0	0	0	0	0	.	.	.	.	.	.	.	.	.
	ATRAZINE	8	0	0	8	0	0	3	0	0	5	0	0	10	0	0
	BENOMYL	0	0	0	0	0	0	.	.	.	.	.	.	.	.	.
	BLADEX	8	0	0	8	0	0	3	0	0	5	0	0	10	0	0
	BUX (METALKAMATE)	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	CARBOFURAN	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	DIALATE	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	DIAZINON	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	DICAMBA	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	DICHLOROVOS	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	DURSBAN	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	EPTAM	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	ETHION	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	GUTHION	0	0	0	0	0	0	.	.	.	.	.	.	.	.	.
	IPC	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	MALATHION	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	METHYL PARATHION	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	METHYLTRITHION	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	METOLACHLOR	8	0	0	8	0	0	3	0	0	5	0	0	10	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P.

SUMMARY TABLE OF RESULTS (1987)

SCAN	PARAMETER	SITE						SITE 1			SITE 2			SITE 3		
		TOTAL	RAW	POSITIVE	TREATED	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
SPECIFIC PESTICIDES	MEVINPHOS	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	PARATHION	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	PHORATE (THIMET)	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	PICHLORAM	0	0	0	0	0	0	.	.	.	.	.	.	.	.	.
	PROMETONE	8	0	0	8	0	0	3	0	0	5	0	0	10	0	0
	PROMETRYNE	8	0	0	8	0	0	3	0	0	5	0	0	10	0	0
	PROPACINE	8	0	0	8	0	0	3	0	0	5	0	0	10	0	0
	PROPOXUR	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	RELDAN	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	RONNEL	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	SENCOR	8	0	0	8	0	0	3	0	0	5	0	0	10	0	0
	SEVIN (CARBARYL)	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	SILVEX	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	SIMAZINE	8	0	0	8	0	0	3	0	0	5	0	0	10	0	0
	SUTAN (BUTYLATE)	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.
	TOXAPHENE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*TOTAL SCAN SPECIFIC PESTICIDES		99	0	0	99	0	0	27	0	0	45	0	0	90	0	0
VOLATILES	1,1 DICHLOROETHANE	9	0	0	9	0	0	4	0	0	5	0	0	9	0	0
	1,1 DICHLOROETHYLENE	9	0	0	9	0	0	4	0	0	5	0	0	9	0	0
	1,2 DICHLOROBENZENE	9	0	0	9	0	0	4	0	0	5	0	0	9	0	0
	1,2 DICHLOROETHANE	9	0	0	9	0	0	4	0	0	5	0	0	9	0	0
	1,2 DICHLOROPROPANE	9	0	0	9	0	0	4	0	0	5	0	0	9	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P.

SUMMARY TABLE OF RESULTS (1987)

SCAN	PARAMETER	SITE			RAW			TREATED			SITE 1			SITE 2			SITE 3		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
VOLATILES	1,3 DICHLOROBENZENE	9	0	0	9	0	0	4	0	0	5	0	0	9	0	0	9	0	0
	1,4 DICHLOROBENZENE	9	0	0	9	0	0	4	0	0	5	0	0	9	0	0	9	0	0
	111, TRICHLOROETHANE	9	0	0	9	0	0	4	0	0	5	0	0	9	0	0	9	0	0
	112 TRICHLOROETHANE	9	0	0	9	0	0	4	0	0	5	0	0	9	0	0	9	0	0
	1122 TETRA-CHLOROETHANE	9	0	0	9	0	0	4	0	0	5	0	0	9	0	0	9	0	0
	BENZENE	9	0	0	9	0	0	4	0	0	5	0	0	9	0	0	9	0	0
	BROMOFORM	9	0	0	9	0	0	4	0	0	5	0	0	9	0	0	9	0	0
	CARBON TETRACHLORIDE	9	0	0	9	0	0	4	0	0	5	0	0	9	0	0	9	0	0
	CHLOROBENZENE	9	0	0	9	0	0	4	0	0	5	0	0	9	0	0	9	0	0
	CHLORODIBROMOMETHANE	9	0	0	9	0	7	4	0	2	5	0	3	9	0	4	9	0	4
	CHLOROFORM	9	4	4	9	9	0	4	4	0	5	5	0	9	9	0	9	9	0
	DICHLOROBROMOMETHANE	9	0	0	9	9	0	4	4	0	5	5	0	9	9	0	9	9	0
	ETHYLENE DIBROMIDE	-	-	-	-	-	-	1	0	0	-	-	-	1	0	0	1	0	0
	ETHYLBENZENE	9	0	0	9	0	1	4	0	0	5	0	0	9	0	0	9	0	0
	M-XYLENE	9	0	0	9	0	0	4	0	0	5	0	0	9	0	0	9	0	0
	METHYLENE CHLORIDE	9	1	0	9	1	0	4	0	0	5	0	0	9	0	0	9	0	0
	O-XYLENE	9	0	0	9	0	0	4	0	0	5	0	0	9	0	0	9	0	0
	P-XYLENE	9	0	0	9	0	0	4	0	0	5	0	0	9	0	0	9	0	0
	TETRACHLOROETHYLENE	9	0	0	9	0	0	4	0	0	5	0	0	9	0	0	9	0	0
	TOLUENE	9	0	0	9	0	2	4	0	0	5	0	1	9	0	1	9	0	1
	TOTAL TRIHALOMETHANES	9	7	1	9	9	0	4	4	0	5	5	0	9	9	0	9	9	0
	TRANS 1,2 DICHLOROETHYLENE	9	0	0	9	0	0	4	0	0	5	0	0	9	0	0	9	0	0
	TRICHLOROETHYLENE	9	0	0	9	0	0	4	0	0	5	0	0	9	0	0	9	0	0
	TRIFLUOROCHLOROTOLUENE	9	0	0	9	0	0	4	0	0	5	0	0	9	0	0	9	0	0
*TOTAL SCAN VOLATILES		252	12	5	252	28	10	113	12	2	140	15	4	253	27	5			
*TOTAL GROUP ORGANIC		669	13	11	739	28	26	289	14	8	375	15	6	721	28	15			

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P.

SUMMARY TABLE OF RESULTS (1987)

SCAN	PARAMETER	SITE			RAW			TREATED			SITE 1			SITE 2			SITE 3		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
TOTAL		1057	291	29	1178	301	59	627	252	21	793	325	26	1573	629	62			

KEY TO TABLES 5 AND 6

- A ONTARIO DRINKING WATER OBJECTIVES
1. Maximum Acceptable Concentration (MAC)
 - 1+. MAC for Total Trihalomethanes
 - 1*. MAC for Bacteriological Analyses
- Poor water quality is indicated when :
- total coliform counts $> 0 < 5$
 - P/A Bottle Test is present after 48 hours
 - Aeromonas organisms are detected in more than 25% of samples in a single submission or in successive submissions from the same sampling site
 - Pseudomonas Aeruginosa, Staphylococcus Aureus and members of the Fecal Streptococcus group should not be detected in any sample
 - Standard Plate Count should not exceed 500 organisms per ml at 35 deg C within 48 hours
2. Interim Maximum Acceptable Concentration (IMAC)
 3. Maximum Desirable Concentration (MDC)
 4. Aesthetic or Recommended Operational Guideline
- hardness levels between 80 and 100 mg/L as calcium carbonate are considered to provide an acceptable balance between corrosion and incrustation, water supplies with a hardness > 200 mg/L are considered poor and those in excess of 500 mg/L are unacceptable.
- B HEALTH & WELFARE CANADA
1. Maximum Acceptable Concentration (MAC)
 2. Proposed MAC
 3. Interim MAC
- C WORLD HEALTH ORGANIZATION
1. Guideline Value (GV)
 2. Tentative GV
 3. Aesthetic GV
- D US ENVIRONMENTAL PROTECTION AGENCY (EPA)
1. Maximum Contaminant Level (MCL)
 2. Suggested No-Adverse Effect Level (SNAEL)
 3. Lifetime Health Advisory
 4. EPA Ambient Water Quality Criteria
- F EUROPEAN ECONOMIC COMMUNITY (EEC)
1. Health Related Guideline Level
 2. Aesthetic Guideline Level
 3. Maximum Admissable Concentration (MADC)
- G CALIFORNIA STATE DEPARTMENT OF HEALTH-GUIDELINE VALUE
- H USSR MAXIMUM PERMISSIBLE CONCENTRATION
- I NEW YORK STATE AMBIENT WATER GUIDELINE

LABORATORY RESULTS, REMARK DESCRIPTIONS

.	No Sample Taken
BDL	Below Minimum Measurable Amount
<T	Greater Than Detection Limit But Not Confident
>	Results Are Greater Than The Upper Limit
<=>	Approximate Result
!AW	No Data: Analysis Withdrawn
!CR	No Data: Could Not Confirm By Reanalysis
!CS	No Data: Contamination Suspected
!IL	No Data: Sample Incorrectly Labelled
!IS	No Data: Insufficient Sample
!LA	No Data: Laboratory Accident
!LD	No Data: Test Queued After Sample Discarded
!NA	No Data: No Authorization To Perform Reanalysis
!NP	No Data: No Procedure
!NR	No Data: Sample Not Received
!OP	No Data: Obscured Plate
!PE	No Data: Procedural Error - Sample Discarded
!PH	No Data: Sample pH Outside Valid Range
!RO	No Data: See Attached Report (no numeric results)
!SM	No Data: Sample Missing
!SS	No Data: Send Separate Sample Properly Preserved
!UI	No Data: Indeterminant Interference
A3C	Approximate, Total Count Exceeded 300 Colonies
APL	Additional Peak, Large, Not Priority Pollutant
APS	Additional Peak, Less Than, Not Priority Pollutant
CIC	Possible Contamination, Improper Cap
CRO	Calculated Result Only
PPS	Test Performed On Preserved Sample

RMP	P and M-Xylene Not Separated
RRV	Rerun Verification
RVU	Reported Value Unusual
SPS	Several Peaks, Small, Not Priority Pollutant
UAL	Unreliable: Sample Age Exceeds Normal Limit
UCR	Unreliable: Could Not Confirm By Reanalysis
UCS	Unreliable: Contamination Suspected
UIN	Unreliable: Indeterminant Interference
XP	Positive After X Number of Hours

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT		DISTRIBUTION SYSTEM					
RAW	TREATED	SITE 1		SITE 2		SITE 3	
		STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
BACTERIOLOGICAL							
AEROMONAS SP (0=ABSENT)		DET'N LIMIT = N/A		GUIDELINE = 0		(A1)	
AUG	.	.	.	.	.	.	1
E. COLI (P/A) (0=ABSENT)		DET'N LIMIT = N/A		GUIDELINE =			
AUG	.	.	.	.	.	.	0
FECAL COLIFORM MF (CT/100ML)		DET'N LIMIT = 0		GUIDELINE = 0		(A1)	
MAY	4	.	.	.	.	.	.
JUN	16	.	.	.	.	.	.
JUL	4	.	.	.	.	.	.
AUG	1	.	.	.	.	.	.
SEP	IBT	.	.	.	.	.	.
	9	.	.	.	.	.	.
OCT	5	.	.	.	.	.	.
NOV	2	.	.	.	.	.	.
DEC	1	.	.	.	.	.	.
FECAL COLIFORM (0=ABSENT)		DET'N LIMIT = N/A		GUIDELINE = 0		(A1)	
AUG	.	.	.	.	.	.	0
STANDRD PLATE CNT MF (CT/ML)		DET'N LIMIT = 0		GUIDELINE = 500/ML		(A1)	
MAR	.	.	0	.	.	.	4

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM					
	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
APR	.	.	.	1	.	.	.	0
MAY	220	0	.	.	.	.	.	0
JUN	2400 >	1	.	1	.	.	.	28
JUL	2400 >	5	.	15	.	.	.	30
AUG	IOP	0	.	.	.	131	.	240
SEP	IBT	0	.	.	.	.	.	IAW
	IAW	IAW	.	.	.	.	.	.
OCT	2400 >	3	.	.	.	166	.	27
NOV	1700	620	.	.	.	0	.	3
DEC	350	3	.	.	.	1	.	0

P/A BOTTLE (0=ABSENT)			DET'N LIMIT = 0		GUIDELINE = 0		(A1*)	
MAR	.	.	.	0	.	.	.	0
APR	.	.	.	0	.	.	.	0
MAY	.	0	.	.	.	.	.	0
JUN	.	0	.	0	.	.	.	0
JUL	.	0	.	0	.	.	.	0
AUG	.	0	.	.	.	.	.	0
SEP	.	0	.	.	.	0	.	1
	.	0	.	.	.	.	.	0
	.	0	.	.	.	.	.	.
OCT	.	0	.	.	.	0	.	0
NOV	.	0	.	.	.	0	.	0
DEC	.	0	.	.	.	0	.	0

STAPH AUREUS (0=ABSENT)			DET'N LIMIT = N/A		GUIDELINE = 0		(A1)	
AUG	.	.	.	.	.	.	.	0

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM					
	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
COLIFORM (0=ABSENT)			DET'N LIMIT = N/A		GUIDELINE = 0 (A1)			
AUG	.	.	.	.	.	.	.	0
TOTAL COLIFORM MF (CT/100ML)			DET'N LIMIT = 0		GUIDELINE = 5/100ML(A1)			
MAR	.	.	.	0	.	.	.	0
APR	.	.	.	0	.	.	.	0
MAY	26 A3C	0	.	.	.	.	.	0
JUN	56 A3C	0	.	0	.	.	.	0
JUL	4 A3C	0	.	0	.	.	.	0
AUG	8 A3C	0	.	.	.	.	.	0
SEP	1BT	0	.	.	.	0	.	0
	300	0	.	.	.	.	.	1
OCT	5700	0	.	.	.	.	.	.
NOV	5 A3C	0	.	.	.	0	.	0
DEC	210 A3C	0	.	.	.	0	.	0
T COLIFORM BCKGRD MF (CT/100ML)			DET'N LIMIT = 0		GUIDELINE = N/A			
MAR	.	.	.	0	.	.	.	0
APR	.	.	.	0	.	.	.	0
MAY	520	0	.	.	.	.	.	0
JUN	45000	0	.	0	.	.	.	0
JUL	2400 >	0	.	0	.	.	.	1500
AUG	6400	0	.	.	.	.	.	730
SEP	1BT	2	.	.	.	0	.	250
	5400	0	.	.	.	.	.	178

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT

DISTRIBUTION SYSTEM

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM					
	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
OCT	6200	1	.	.	.	0	.	9
NOV	300	0	.	.	.	0	.	0
DEC	1400	0	.	.	.	0	.	0

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT				DISTRIBUTION SYSTEM				
SITE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW

CHEMISTRY (FLD)								
FLD CHLORINE (COMB) (MG/L)		DET'N LIMIT = N/A		GUIDELINE =		N/A		
MAR400	.	.	.	.200
APR	.	.	.300	.200	.	.	.	.200
MAY	.	.250	.	.	.	.	.	.200
JUN	.	.320	.200	.200	.	.	.	.
JUL	.	.200	.400	.200	.	.	.100	.100
AUG	.	.340	.	.	.	.	.	.
SEP	.	.400	.	.	.	.	.010	.010
	.	.400	.	.	.	.	.	.
OCT	.	.300	.	.	.	.	.100	.200
NOV	.	.290	.	.	.	.200	.100	.300
DEC	.	.260	.	.	.	.400	.100	.300

FLD CHLORINE FREE (MG/L)		DET'N LIMIT = N/A		GUIDELINE =		N/A		
MAR500	.	.	.100	.100
APR	.	.	.400	.500	.	.	.100	.100
MAY	.	.890	.	.	.	.	.100	.100
JUN	.	.460	.300	.500	.	.	.100	.100
JUL	.	.840	.300	.300	.	.	.	.
AUG	.	.800	.	.	.100	.100	.100	.100
SEP	.	.450	.	.	.100	.010	.	.
	.	.670	.	.	.	.	.	.
OCT	.	.780	.	.	.100	.100	.	.100
NOV	.	.770	.	.	.100	.100	.100	.100
DEC	.	.900	.	.	.100	.100	.100	.100

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE			SITE 1		SITE 2		SITE 3	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
TOTAL CHLORINE (MG/L)			DET'N LIMIT = N/A		GUIDELINE =		N/A	
MAR	.	.	.	.900	.	.	.100	.300
APR	.	.	.700	.700	.	.	.100	.300
MAY	.	1.140	.	.	.	.	.100	.300
JUN	.	.780	.500	.700	.	.	.100	.300
JUL	.	1.040	.700	.500	.	.	.100	.100
AUG	.	1.140	.	.	.100	.	.100	.100
SEP	.	.850	.	.	.100	.100	.100	.100
	.	1.070	.	.	.	.100	.010	.010
OCT	.	1.080	.	.	.100	.100	.100	.
NOV	.	1.060	.	.	.100	.300	.200	.300
DEC	.	1.160	.	.	.100	.500	.100	.300
FLD PH (DMSNLESS)			DET'N LIMIT = N/A		GUIDELINE =		N/A	
MAR	.	.	.	7.000	.	.	7.000	6.900
APR	.	.	6.800	6.800	.	.	7.000	6.800
MAY	8.300	6.950	.	.	.	.	7.000	6.800
JUN	7.900	6.900	6.800	6.800	.	.	7.000	6.800
JUL	8.000	6.850	7.000	6.800	.	.	7.000	6.800
AUG	8.500	6.750	.	.	6.800	6.800	6.800	6.800
SEP	8.400	7.000	.	.	6.800	6.800	6.800	6.800
	7.800	6.700	.	.	.	.	.	.
OCT	8.200	6.850	.	.	6.800	7.000	6.800	6.800
NOV	8.300	6.900	.	.	6.800	6.800	6.800	6.800
DEC	7.900	6.900	.	.	7.000	7.000	6.800	6.800

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
TEMPERATURE (DEG.C)			DET'N LIMIT = N/A		GUIDELINE =		N/A	
MAR	.	.	.	.	.	.	15.000	5.000
APR	.	.	8.500	6.500	.	.	17.000	6.000
MAY	12.800	12.900	.	.	.	.	18.000	11.500
JUN	21.000	21.500	16.000	20.000	.	.	21.000	16.500
JUL	23.000	23.800	20.000	23.000	.	.	25.000	20.000
AUG	25.000	25.000	.	.	22.000	22.000	24.000	21.000
SEP	20.500	21.000	.	.	24.000	21.000	23.000	20.000
	17.000	18.500	.	.	.	.	.	.
OCT	14.000	15.000	.	.	20.000	18.000	21.000	17.500
NOV	9.000	10.000	.	.	20.000	17.500	20.000	13.000
DEC	2.000	3.500	.	.	22.000	16.000	19.000	8.000
FLD TURBIDITY (FTU)			DET'N LIMIT = N/A		GUIDELINE =			
MAY	1.100	.140	.	.	.	.	.	.
JUN	.	.210	.	.	.	.	.	.
JUL	1.100	.240	.	.	.	.	.	.
AUG	3.400	.250	.	.	.	.	.	.
SEP	2.200	2.800	.	.	.	.	.	.
	2.400	.220	.	.	.	.	.	.
OCT	2.400	.200	.	.	.	.	.	.
NOV	3.500	.260	.	.	.	.	.	.
DEC	1.600	.290	.	.	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW

CHEMISTRY (LAB)								

ALKALINITY (MG/L)		DET'N LIMIT = .200		GUIDELINE = 30-500 (A4)				
MAR	.	.	108.300	108.000	.	.	109.400	110.400
APR	.	.	101.000	101.000	.	.	105.900	103.700
MAY	108.700	83.400	.	.	.	.	86.600	86.000
JUN	119.500	93.500	97.300	98.000	.	.	99.900	98.400
JUL	121.000	93.100	91.600	91.600	.	.	93.500	92.100
AUG	IUR	80.800	.	.	82.000	81.400	86.800	81.600
SEP	105.700	76.400	.	.	75.400	75.000	77.200	75.500
	101.800	73.100	.	.	.	.	.	.
OCT	107.100	78.000	.	.	79.000	78.200	79.300	78.900
NOV	113.000	86.000	.	.	87.500	85.700	86.200	86.300
DEC	117.000	91.800	.	.	92.900	91.100	92.900	92.400

CALCIUM (MG/L)		DET'N LIMIT = .100		GUIDELINE = 100. (F2)				
MAR	.	.	50.900	52.100	.	.	51.800	52.200
APR	.	.	50.500	49.500	.	.	50.400	50.300
MAY	43.200	42.400	.	.	.	.	42.600	42.500
JUN	45.800	46.000	45.000	44.000	.	.	45.400	45.400
JUL	45.200	44.200	44.600	45.000	.	.	46.200	45.200
AUG	IUR	40.200	.	.	41.200	40.600	42.600	41.600
SEP	38.800	39.200	.	.	38.400	37.600	39.400	39.000
	37.600	38.400	.	.	.	.	.	.
OCT	39.000	39.200	.	.	39.000	40.200	39.000	39.800
NOV	40.800	41.800	.	.	42.600	41.600	42.400	41.400
DEC	44.700	46.100	.	.	46.800	46.200	45.200	44.800

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
CHLORIDE (MG/L)			DET'N LIMIT = .200		GUIDELINE = 250.0 (A3)			
MAR	.	.	15.500	15.000	.	.	15.000	15.500
APR	.	.	12.500	12.500	.	.	13.500	13.000
MAY	7.000	11.000	.	.	.	.	11.500	11.000
JUN	7.000	11.500	12.500	12.000	.	.	12.500	12.000
JUL	8.500	12.500	13.500	13.000	.	.	13.000	13.000
AUG	IUR	14.500	.	.	14.500	14.500	15.000	14.500
SEP	11.500	16.000	.	.	16.500	16.000	16.000	16.000
	11.500	16.000	.	.	.	.	.	.
OCT	12.000	15.500	.	.	16.000	15.500	16.000	15.500
NOV	11.500	14.400	.	.	15.200	14.700	14.700	14.600
DEC	10.200	12.800	.	.	13.100	12.900	13.400	12.900
COLOUR (HZU)			DET'N LIMIT = .5		GUIDELINE = 5.0 (A3)			
MAR	.	.	6.000	8.500	.	.	7.000	3.000
APR	.	.	4.500	4.500	.	.	5.000	5.000
MAY	19.000	3.000	.	.	.	.	2.500 <T	4.000
JUN	14.500	3.500	5.000	4.000	.	.	4.500	5.000
JUL	15.000	4.000	5.500	4.500	.	.	4.500	4.500
AUG	IUR	4.000	.	.	4.500	4.500	4.000	4.500
SEP	16.500	3.500	.	.	5.000	5.000	4.000	4.500
	13.500	3.500	.	.	.	.	.	.
OCT	13.500	3.000	.	.	3.500	5.500	4.000	4.500
NOV	13.000	2.500	.	.	3.000	3.500	3.500	3.500
DEC	13.000	2.500	.	.	4.500	4.000	4.000	4.000

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
CONDUCTIVITY (UMHO/CM)			DET'N LIMIT = 1		GUIDELINE = 400. (F2)			
MAR	.	.	315	313	.	.	314	317
APR	.	.	314	314	.	.	323	319
MAY	246	264	.	.	.	.	265	275
JUN	276	289	301	282	.	.	304	301
JUL	276	291	290	288	.	.	291	288
AUG	1UR	277	.	.	275	274	280	276
SEP	261	270	.	.	275	270	274	271
	255	268	.	.	.	.	.	.
OCT	262	274	.	.	286	275	278	277
NOV	270	283	.	.	295	283	284	285
DEC	284	293	.	.	301	292	299	296
FLUORIDE (MG/L)			DET'N LIMIT = .01		GUIDELINE = 2.400 (A1)			
MAR	.	.	1.210	1.220	.	.	1.300	1.180
APR	.	.	1.190	1.200	.	.	1.230	1.180
MAY	.110	1.330	.	.	.	.	1.380	1.300
JUN	.090	1.200	1.240	1.280	.	.	1.300	1.250
JUL	.100	1.200	1.210	1.200	.	.	1.280	1.230
AUG	1UR	1.260	.	.	1.260	1.300	1.320	1.300
SEP	.120	1.220	.	.	1.200	1.180	1.240	1.180
	.080	1.320	.	.	.	.	.	.
OCT	.140	1.400	.	.	1.360	1.360	1.360	1.340
NOV	.100	1.300	.	.	1.360	1.340	1.340	1.300
DEC	.080	1.160	.	.	1.280	1.200	1.320	1.200

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
HARDNESS (MG/L)			DET'N LIMIT = .500		GUIDELINE = 80-100 (A4)			
MAR	.	.	149.000	151.000	.	.	149.500	151.000
APR	.	.	145.500	143.500	.	.	146.000	145.000
MAY	125.000	124.000	.	.	.	.	123.000	124.000
JUN	138.000	139.000	131.000	129.000	.	.	132.000	132.000
JUL	131.000	128.000	131.000	132.000	.	.	135.000	132.000
AUG	IUR	120.000	.	.	122.000	121.000	126.000	123.000
SEP	119.000	119.000	.	.	116.000	114.000	120.000	118.000
	116.000	118.000	.	.	.	.	.	.
OCT	120.000	121.000	.	.	120.000	122.000	119.000	122.000
NOV	125.000	127.000	.	.	130.000	127.000	128.000	126.000
DEC	132.000	136.000	.	.	138.000	136.000	134.000	133.000
MAGNESIUM (MG/L)			DET'N LIMIT = .050		GUIDELINE = 30. (F2)			
MAR	.	.	5.300	5.100	.	.	4.900	5.000
APR	.	.	4.700	4.900	.	.	4.800	4.700
MAY	4.200	4.400	.	.	.	.	4.100	4.300
JUN	5.800	5.800	4.500	4.500	.	.	4.500	4.500
JUL	4.300	4.200	4.700	4.600	.	.	4.700	4.600
AUG	IUR	4.800	.	.	4.700	4.700	4.700	4.600
SEP	5.300	5.200	.	.	5.000	4.900	5.200	5.100
	5.400	5.400	.	.	.	.	.	.
OCT	5.500	5.500	.	.	5.400	5.300	5.400	5.400
NOV	5.600	5.500	.	.	5.600	5.600	5.500	5.500
DEC	4.950	5.050	.	.	5.100	5.050	5.050	5.000

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
			DET'N LIMIT = .200		GUIDELINE = 200. (C3)			
SODIUM (MG/L)								
MAR	.	.	7.500	7.300	.	.	7.200	7.600
APR	.	.	5.400	5.200	.	.	6.000	5.600
MAY	4.400	4.500	.	.	.	.	4.300	4.100
JUN	5.000	5.200	5.000	4.800	.	.	5.400	5.000
JUL	2.000	2.000	5.800	5.800	.	.	6.400	5.800
AUG	IUR	7.600	.	.	5.800	5.800	6.200	5.600
SEP	8.000	7.800	.	.	8.000	8.000	8.000	8.000
	7.800	7.800	.	.	.	.	.	.
OCT	7.400	7.400	.	.	7.600	7.800	7.600	7.600
NOV	7.400	7.400	.	.	7.800	7.400	7.400	7.400
DEC	6.200	6.500	.	.	6.300	6.400	6.800	6.500
AMMONIUM TOTAL (MG/L)			DET'N LIMIT = 0.002		GUIDELINE = .05 (F2)			
MAR	.	.	.012	.014	.	.	.020	.016
APR	.	.	.016	.016	.	.	.024	.018
MAY	.030	.010	.	.	.	.	.012	.008 <T
JUN	.008 <T	.014	.016	.014	.	.	.024	.026
JUL	.080	.010	.022	.018	.	.	.028	.026
AUG	IUR	.012	.	.	.128	.010	.032	.034
SEP	.430	.014	.	.	.162	.034	.044	.038
	.222	.018	.	.	.	.	.	.
OCT	.154	.006 <T	.	.	.692	.022	.034	.018
NOV	.048	.014	.	.	.380	.010	.014	.008 <T
DEC	.050	.002 <T	.	.	.284	.060	.030	.006 <T

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
<hr/>								
NITRITE (MG/L)			DET'N LIMIT = 0.001		GUIDELINE = 1.000 (A1)			
MAR	.	.	.003 <T	.004 <T	.	.	.004 <T	.004 <T
APR	.	.	.001 <T	.001 <T	.	.	.001 <T	.001 <T
MAY	.003 <T	.004 <T	.	.	.	.	.004 <T	.005
JUN	.095	.002 <T	.003 <T	.002 <T	.	.	.004 <T	.002 <T
JUL	.004 <T	.002 <T	.002 <T	.001 <T	.	.	.002 <T	.001 <T
AUG	1UR	.002 <T	.	.	.002 <T	.002 <T	.002 <T	.003 <T
SEP	.014	.001 <T	.	.	.004 <T	.003 <T	.002 <T	.001 <T
	.066	.006	.	.	.	.	.	.
OCT	.008	.001 <T	.	.	.003 <T	.002 <T	.003 <T	.003 <T
NOV	.001 <T	BDL	.	.	.001 <T	.001 <T	BDL	BDL
DEC	.006	BDL	.	.	.001 <T	BDL	.001 <T	BDL
<hr/>								
TOTAL NITRATES (MG/L)			DET'N LIMIT = .020		GUIDELINE = 10.000 (A1)			
MAR	.	.	.325	.315	.	.	.330	.315
APR	.	.	.505	.505	.	.	.530	.485
MAY	.020 <T	.025 <T	.	.	.	.	.035 <T	.020 <T
JUN	.155	.035 <T	.060 <T	.030 <T	.	.	.050 <T	.030 <T
JUL	.025 <T	.035 <T	.040 <T	BDL	.	.	.050 <T	BDL
AUG	1UR	.020 <T	.	.	.145	BDL	.090 <T	.020 <T
SEP	.035 <T	.030 <T	.	.	.305	.040 <T	.075 <T	.025 <T
	.080 <T	.040 <T	.	.	.	.	.	.
OCT	.020 <T	BDL	.	.	.955	.020 <T	.055 <T	.020 <T
NOV	BDL	.020 <T	.	.	.855	BDL	.030 <T	BDL
DEC	.290	.285	.	.	.790	.355	.315	.275
<hr/>								

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
NITROGEN TOT KJELD (MG/L)			DET'N LIMIT = .020		GUIDELINE = N/A			
MAR	.	.	.300	.270	.	.	.510	.290
APR	.	.	.150	.180	.	.	.170	.160
MAY	.350	.160	.	.	.	.	.150	.160
JUN	.380	.270	.220	.220	.	.	.220	.210
JUL	.310	.230	.420	.280	.	.	.200	.230
AUG	IUR	.230	.	.	.370	.280	.310	.280
SEP	.710	.330	.	.	.560	.320	.300	.330
	.600	.350	.	.	.	.	.	.
OCT	.940	.350	.	.	1.240	.260	.360	.250
NOV	.660	.300	.	.	1.020	.330	.310	.300
DEC	.530	.240	.	.	.710	.350	.350	.270
PH (DMSNLESS)			DET'N LIMIT = N/A		GUIDELINE = 6.5-8.5(A4)			
MAR	.	.	7.700	7.660	.	.	7.760	7.720
APR	.	.	7.750	7.710	.	.	7.840	7.720
MAY	8.350	7.810	.	.	.	.	8.100	7.970
JUN	7.980	7.290	7.880	7.950	.	.	7.980	7.890
JUL	8.430	8.180	7.360	7.280	.	.	7.490	7.320
AUG	IUR	7.570	.	.	7.800	7.750	7.880	7.490
SEP	8.040	7.570	.	.	7.690	7.580	7.730	7.590
	7.890	7.340	.	.	.	.	.	.
OCT	8.230	7.780	.	.	7.780	7.760	7.830	7.770
NOV	8.260	7.680	.	.	7.740	7.720	7.730	7.710
DEC	8.320	8.220	.	.	8.140	8.250	8.230	8.070

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
<hr/>								
PHOSPHORUS FIL REACT (MG/L)			DET'N LIMIT = .5UG/L		GUIDELINE =		N/A	
MAY	.001 <T	.000 <T	.	.	.	.	.	.
JUN	.007	.001 <T	.	.	.	.	.	.
JUL	.004	.001 <T	.	.	.	.	.	.
AUG	1UR	.000 <T	.	.	.	.	.	.
SEP	.015	BDL	.	.	.	.	.	.
	.012	.000 <T	.	.	.	.	.	.
OCT	.005	BDL	.	.	.	.	.	.
NOV	.000 <T	.004	.	.	.	.	.	.
DEC	.004	.003	.	.	.	.	.	.
<hr/>								
PHOSPHORUS TTL-UNFIL (MG/L)			DET'N LIMIT = .002		GUIDELINE = .40		(F2)	
MAY	BDL	BDL	.	.	.	.	.	.
JUN	.035	.006 <T	.	.	.	.	.	.
JUL	.027	.005 <T	.	.	.	.	.	.
AUG	1UR	.002 RVU	.	.	.	.	.	.
SEP	.036	BDL	.	.	.	.	.	.
	.048	.017	.	.	.	.	.	.
OCT	.055	BDL	.	.	.	.	.	.
NOV	.033	.004 <T	.	.	.	.	.	.
DEC	.013	.003 <T	.	.	.	.	.	.
<hr/>								
RESIDUE (TOTAL) (MG/L)			DET'N LIMIT = 1.		GUIDELINE = 500.		(A3)	
MAR	.	.	205 CRO	203 CRO	.	.	204 CRO	206 CRO
APR	.	.	204 CRO	204 CRO	.	.	210 CRO	207 CRO

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
MAY	160 CRO	172 CRO	.	.	.	.	172 CRO	179 CRO
JUN	179 CRO	188 CRO	196 CRO	183 CRO	.	.	198 CRO	194
JUL	179 CRO	189 CRO	189 CRO	187 CRO	.	.	189 CRO	187 CRO
AUG	IUR	180 CRO	.	.	179 CRO	178 CRO	182 CRO	179 CRO
SEP	170 CRO	176 CRO	.	.	179 CRO	176 CRO	178 CRO	176 CRO
	166 CRO	174 CRO	.	.	.	.	.	.
OCT	170 CRO	178 CRO	.	.	186 CRO	179 CRO	181 CRO	180 CRO
NOV	176 CRO	184 CRO	.	.	192 CRO	184 CRO	185 CRO	185 CRO
DEC	185 CRO	190 CRO	.	.	196 CRO	190 CRO	194 CRO	192 CRO
TURBIDITY (FTU)								
			DET'N LIMIT = .02		GUIDELINE = 1.00 (A1)			
MAR	.	.	.350	.430	.	.	.530	.410
APR	.	.	.200	.230	.	.	.250	.420
MAY	2.300	.200	.	.	.	.	.270	.200
JUN	2.200	.200	.220	.170	.	.	.310	.190
JUL	2.500	.320	.690	.310	.	.	.270	.320
AUG	IUR	.470	.	.	.610	.400	.330	.350
SEP	4.400	.610	.	.	.530	.480	.420	.490
	4.900	.290	.	.	.	.	.	.
OCT	9.900	.300	.	.	.850	.330	.300	.330
NOV	3.400	.170	.	.	.350	.200	.270	.190
DEC	1.600	.170	.	.	.790	.190	.210	.210

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
METALS								
ALUMINUM (MG/L)			DET'N LIMIT = .004		GUIDELINE = .10		(A4)	
MAR	.	.	.220	.210	.	.	.190	.210
APR	.	.	.120	.110	.	.	.100	.097
MAY	.170	.097	.	.	.	.	.089	.097
JUN	.140	.100	.097	.120	.	.	.100	.097
JUL	.170	.150	.200	.600	.	.	.750	.530
AUG	.200	.210	.	.	.210	.220	.210	.210
SEP	.250	.220	.	.	.160	.180	.180	.180
	.180	.160	.	.	.	.	.	.
OCT	.390	.170	.	.	.160	.150	.110	.140
NOV	.073	.160	.	.	.120	.140	.120	.130
DEC	.044	.210	.	.	.290	.220	.170	.190
ARSENIC (MG/L)								
			DET'N LIMIT = 0.001		GUIDELINE = .050		(A1)	
APR	.	.	BDL	BDL	.	.	BDL	BDL
MAY	BDL	BDL	.	.	.	.	BDL	BDL
JUN	BDL	BDL	BDL	BDL	.	.	BDL	BDL
JUL	BDL	BDL	BDL	BDL	.	.	BDL	BDL
AUG	BDL	BDL	.	.	.	.	.001	BDL
SEP	BDL	BDL	.	.	BDL	BDL	BDL	BDL
	BDL	BDL	.	.	BDL	BDL	BDL	BDL
OCT	BDL	BDL	.	.	.	.	.	.
NOV	BDL	BDL	.	.	BDL	BDL	BDL	BDL
DEC	BDL	BDL	.	.	BDL	BDL	BDL	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
BARIUM (MG/L)			DET'N LIMIT = N/A		GUIDELINE = 1.000 (A1)			
MAR	.	.	.034	.033	.	.	.035	.032
APR	.	.	.030	.029	.	.	.033	.029
MAY	.036	.030	.	.	.	.	.031	.030
JUN	.035	.033	.033	.034	.	.	.035	.035
JUL	.041	.035	.039	.040	.	.	.042	.039
AUG	.035	.032	.	.	.031	.030	.033	.031
SEP	.034	.032	.	.	.032	.031	.032	.032
	.038	.032	.	.	.	.	.	.
OCT	.031	.029	.	.	.029	.028	.029	.028
NOV	.029	.027	.	.	.029	.028	.028	.026
DEC	.030	.028	.	.	.032	.028	.032	.028
BORON (MG/L)			DET'N LIMIT = 0.01		GUIDELINE = 5.000 (A1)			
MAR	.	.	.020	.020	.	.	BDL	.020
APR	.	.	BDL	BDL	.	.	BDL	BDL
MAY	BDL	.020 <T	.	.	.	.	.020 <T	.020 <T
JUN	BDL	BDL	BDL	BDL	.	.	BDL	BDL
JUL	BDL	.020 <T	.030 <T	.010 <T	.	.	.010 <T	.010 <T
AUG	.020 <T	.010 <T	.	.	BDL	.020 <T	.010 <T	.020 <T
SEP	.020 <T	.020 <T	.	.	.030 <T	.020 <T	.020 <T	.020 <T
	.010 <T	.020 <T	.	.	.	.	.	.
OCT	.010 <T	.010 <T	.	.	.010 <T	.010 <T	.020 <T	.010 <T
NOV	.010 <T	.010 <T	.	.	.020 <T	.010 <T	.010 <T	.010 <T
DEC	.010 <T	.007 <T	.	.	.025 <T	.005 <T	BDL	.009 <T

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
CADMIUM (UG/L)			DET'N LIMIT = 0.300		GUIDELINE = 5.000 (A1)			
MAR	.	.	BDL	BDL	.	.	BDL	BDL
APR	.	.	BDL	BDL	.	.	BDL	BDL
MAY	BDL	BDL	.	.	.	.	BDL	BDL
JUN	BDL	BDL	BDL	BDL	.	.	BDL	BDL
JUL	BDL	BDL	4.000	BDL	.	.	BDL	BDL
AUG	BDL	BDL	.	.	.	.	BDL	BDL
SEP	BDL	BDL	.	.	BDL	BDL	BDL	BDL
	BDL	BDL	.	.	BDL	BDL	BDL	BDL
OCT	.500	BDL	.	.	BDL	BDL	BDL	BDL
NOV	BDL	BDL	.	.	3.200	BDL	BDL	BDL
DEC	BDL	BDL	.	.	BDL	BDL	BDL	BDL
COBALT (MG/L)			DET'N LIMIT = 0.001		GUIDELINE = 1.0 (H)			
MAR	.	.	BDL	BDL	.	.	BDL	BDL
APR	.	.	.003	.003	.	.	.003	.002
MAY	BDL	BDL	.	.	.	.	BDL	BDL
JUN	BDL	BDL	BDL	BDL	.	.	.001	BDL
JUL	BDL	BDL	BDL	BDL	.	.	BDL	BDL
AUG	BDL	BDL	.	.	BDL	BDL	BDL	BDL
SEP	.001	.001	.	.	BDL	BDL	.001	BDL
	BDL	.001	.	.	BDL	BDL	.	.
OCT	BDL	BDL	.	.	BDL	BDL	BDL	.001
NOV	BDL	BDL	.	.	.001	BDL	BDL	BDL
DEC	BDL	BDL	.	.	.002	BDL	BDL	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
CHROMIUM (MG/L)			DET'N LIMIT = 0.001		GUIDELINE = .05 (A1)			
MAR	.	.	BDL	BDL	.	.	.035	BDL
APR	.	.	BDL	BDL	.	.	BDL	BDL
MAY	BDL	BDL	.	.	.	.	BDL	BDL
JUN	.001	BDL	.003	.001	.	.	.001	.001
JUL	.001	BDL	BDL	.006	.	.	.008	.006
AUG	BDL	BDL	.	.	BDL	BDL	BDL	BDL
SEP	BDL	BDL	.	.	BDL	BDL	BDL	BDL
	BDL	BDL	.	.	.	.	.	.
OCT	.002	.001	.	.	.002	.001	.001	.002
NOV	.001	.001	.	.	.002	.001	.002	.001
DEC	.001	.001	.	.	.001	.001	.001	.002
COPPER (MG/L)			DET'N LIMIT = .001		GUIDELINE = 1.0 (A3)			
MAR	.	.	.010	.001	.	.	.057	.005
APR	.	.	.010	.001	.	.	.057	.004
MAY	BDL	BDL	.	.	.	.	.051	.005
JUN	.002	.002	.027	.004	.	.	.046	.007
JUL	.024	BDL	.019	.110	.	.	.200	.110
AUG	.001	BDL	.	.	.150	.027	.057	.006
SEP	.001	.001	.	.	.054	.062	.052	.007
	.002	BDL	.	.	.	.	.	.
OCT	.002	BDL	.	.	.610	.190	.062	.009
NOV	.002	BDL	.	.	.570	.160	.053	.007
DEC	.001	BDL	.	.	.180	.032	.053	.006

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
IRON (MG/L)			DET'N LIMIT = .002		GUIDELINE = .300 (A3)			
MAR	.	.	.027	.011	.	.	.022	.034
APR	.	.	.045	.013	.	.	.032	.044
MAY	.120	.002	.	.	.	.	.020	.028
JUN	.100	.007	.049	.013	.	.	.037	.051
JUL	.110	.008	.076	.030	.	.	.051	.060
AUG	.230	.020	.	.	.031	.027	.029	.057
SEP	.150	.006	.	.	.062	.084	.026	.060
	1.100	.094	.	.	.	.	.	.
OCT	.180	.004	.	.	.080	.068	.022	.039
NOV	.086	.004	.	.	.023	.017	.022	.026
DEC	.058	.003	.	.	.070	.024	.029	.044
MERCURY (UG/L)			DET'N LIMIT = 0.010		GUIDELINE = 1.000 (A1)			
MAR	.	.	.	.010	.	.	.	.010
APR	.	.	.	.010	.	.	.	.020
MAY	BDL	.010	.	.	.	.	.	.020
JUN	ISS	ISS	.	.020	.	.	.	.020
JUL	.030	.050	.	.020	.	.	.	.020
AUG	.060	.070	.	.	.	.060	.	.030
SEP	.080	.090	.	.	.	.040	.	.030
	.090	.090	.	.	.	.	.	.
OCT	.080	.070	.	.	.	.060	.	.020
NOV	.100	.100	.	.	.	.040	.	.030
DEC	.080	.080	.	.	.	.250	.	.030

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW

MANGANESE (MG/L)			DET'N LIMIT = .001		GUIDELINE = .050 (A3)			
MAR	.	.	.004	.004	.	.	.004	.004
APR	.	.	.003	.002	.	.	.003	.003
MAY	.023	.001	.	.	.	.	.002	.002
JUN	.033	.001	.005	.002	.	.	.003	.004
JUL	.068	.003	.007	.005	.	.	.004	.005
AUG	.100	.005	.	.	.007	.006	.006	.006
SEP	.076	.004	.	.	.006	.007	.005	.007
	.058	.004	.	.	.	.	.	.
OCT	.057	.004	.	.	.006	.005	.004	.005
NOV	.028	.002	.	.	.005	.004	.003	.004
DEC	.010	.002	.	.	.007	.004	.004	.005

MOLYBDENUM (MG/L)			DET'N LIMIT = 0.001		GUIDELINE = .50 (H)			
MAR	.	.	BDL	BDL	.	.	BDL	BDL
APR	.	.	BDL	BDL	.	.	BDL	BDL
MAY	BDL	BDL	.	.	.	.	BDL	BDL
JUN	BDL	BDL	BDL	BDL	.	.	BDL	BDL
JUL	BDL	BDL	BDL	BDL	.	.	BDL	BDL
AUG	BDL	BDL	.	.	BDL	BDL	BDL	BDL
SEP	BDL	BDL	.	.	.001	BDL	BDL	BDL
	BDL	BDL	.	.	.	.	.	.
OCT	BDL	BDL	.	.	BDL	BDL	BDL	BDL
NOV	BDL	BDL	.	.	BDL	.001	BDL	BDL
DEC	BDL	BDL	.	.	BDL	BDL	BDL	BDL

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
NICKEL (MG/L)			DET'N LIMIT = 0.001		GUIDELINE = .05 (F3)			
MAR	.	.	BDL	BDL	.	.	.008	BDL
APR	.	.	.008	BDL	.	.	.004	BDL
MAY	BDL	BDL	.	.	.	.	.003	BDL
JUN	BDL	BDL	.003	BDL	.	.	.003	BDL
JUL	BDL	BDL	.003	BDL	.	.	.004	.003
AUG	BDL	BDL	.	.	.002	BDL	.008	BDL
SEP	BDL	BDL	.	.	.160	BDL	.003	BDL
	BDL	BDL	.	.	.	.	.	.
OCT	.001	BDL	.	.	.017	.002	.004	.001
NOV	BDL	.002	.	.	.550	.002	.004	.001
DEC	BDL	.001	.	.	.600	.029	.004	.001
LEAD (MG/L)			DET'N LIMIT = 0.003		GUIDELINE = .050 (A1)			
MAR	.	.	BDL	BDL	.	.	BDL	BDL
APR	.	.	.022	.020	.	.	.020	.016
MAY	BDL	BDL	.	.	.	.	.003	BDL
JUN	BDL	BDL	.007	BDL	.	.	.009	.004
JUL	BDL	BDL	BDL	BDL	.	.	BDL	BDL
AUG	.004	.005	.	.	.009	.004	.006	BDL
SEP	.010	.006	.	.	.007	.005	.008	.004
	BDL	BDL	.	.	.	.	.	.
OCT	BDL	BDL	.	.	.018	.005	.004	BDL
NOV	BDL	BDL	.	.	.012	.009	BDL	BDL
DEC	BDL	BDL	.	.	.007	.004	.004	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
<hr/>								
STRONTIUM (MG/L)			DET'N LIMIT = .001		GUIDELINE = 2.00 (H)			
MAR	.	.	.150	.150	.	.	.150	.140
APR	.	.	.140	.140	.	.	.150	.140
MAY	.160	.130	.	.	.	.	.120	.130
JUN	.140	.140	.140	.140	.	.	.140	.140
JUL	.160	.150	.160	.160	.	.	.160	.160
AUG	.140	.140	.	.	.130	.130	.140	.130
SEP	.130	.130	.	.	.130	.130	.130	.130
	.130	.130	.	.	.	.	.	.
OCT	.120	.120	.	.	.120	.120	.120	.120
NOV	.120	.120	.	.	.120	.120	.120	.110
DEC	.130	.130	.	.	.130	.130	.130	.130
<hr/>								
URANIUM (UG/L)			DET'N LIMIT =		GUIDELINE = 20. (A2)			
MAR	.	.	.260	.270	.	.	.260	.250
APR	.	.	.210	.210	.	.	.210	.220
MAY	.250 <T	.110 <T	.	.	.	.	.110 <T	.110 <T
JUN	.220	.080	.110	.080	.	.	.110	.090
JUL	.190	.090	.090	.080	.	.	.090	.080
AUG	.210	.110	.	.	.120	.120	.120	.120
SEP	.240	.120	.	.	BDL	BDL	.110	.130
	.210	.080	.	.	.	.	.	.
OCT	.340	.120	.	.	.100	.100	.100	.100
NOV	.350	.170	.	.	.130	.150	.150	.160
DEC	.390	.190	.	.	.180	.180	.180	.180
<hr/>								

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
<hr/>								
VANADIUM (MG/L)			DET'N LIMIT = .001		GUIDELINE = .10 (H)			
MAR	.	.	BDL	BDL	.	.	BDL	BDL
APR	.	.	BDL	BDL	.	.	BDL	BDL
MAY	BDL	BDL	.	.	.	.	BDL	BDL
JUN	.001	.001	.001	.001	.	.	.001	.001
JUL	.001	.001	.001	.001	.	.	.001	.001
AUG	.001	.001	.	.	.001	.001	.001	.001
SEP	.001	.001	.	.	.001	.001	.001	.001
	.001	.001	.	.	.	.	.	.
OCT	.003	.002	.	.	.002	.001	BDL	.002
NOV	BDL	BDL	.	.	BDL	BDL	BDL	BDL
DEC	BDL	BDL	.	.	.001	BDL	BDL	BDL
<hr/>								
ZINC (MG/L)			DET'N LIMIT = .001		GUIDELINE = 5.00 (A3)			
MAR	.	.	.059	.003	.	.	.011	.002
APR	.	.	.038	.002	.	.	.012	.001
MAY	.002	.002	.	.	.	.	.022	.002
JUN	.002	.003	.059	.008	.	.	.018	.003
JUL	BDL	BDL	.030	BDL	.	.	BDL	BDL
AUG	.014	.018	.	.	.039	.033	.024	.005
SEP	BDL	BDL	.	.	.010	.002	.018	BDL
	.003	.001	.	.	.	.	.	.
OCT	.005	BDL	.	.	.075	.017	.017	.008
NOV	.005	BDL	.	.	.056	.053	.016	.003
DEC	.003	BDL	.	.	.009	.003	.015	.002

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW

CHLOROAROMATICS								
123 TRICHLOROBENZENE (NG/L)			DET'N LIMIT = 5.000		GUIDELINE = 10000. (I)			
MAR	.	.	.	BDL	.	.	.	BDL
APR	.	.	.	16.000 <T	.	.	.	BDL
MAY	BDL	BDL	.	.	.	.	.	BDL
JUN	ISM	ISM	.	BDL	.	.	.	BDL
JUL	BDL	BDL	.	BDL	.	.	.	BDL
AUG	BDL	BDL	.	.	.	BDL	.	BDL
SEP	BDL	BDL	.	.	.	BDL	.	BDL
	ICS	BDL	.	.	.	.	.	.
OCT	.	BDL	.	.	.	BDL	.	BDL
NOV	BDL	BDL	.	.	.	BDL	.	BDL
DEC	BDL	BDL	.	.	.	BDL	.	BDL

1234 T-CHLOROBENZENE (NG/L)			DET'N LIMIT = 1.000		GUIDELINE = 10000. (I)			
MAR	.	.	.	BDL	.	.	.	BDL
APR	.	.	.	BDL	.	.	.	BDL
MAY	BDL	BDL	.	.	.	.	.	BDL
JUN	ISM	ISM	.	BDL	.	.	.	BDL
JUL	BDL	BDL	.	BDL	.	.	.	BDL
AUG	BDL	19.000 <T	.	.	.	BDL	.	BDL
SEP	BDL	BDL	.	.	.	BDL	.	BDL
	ICS	BDL	.	.	.	.	.	.
OCT	.	BDL	.	.	.	BDL	.	BDL
NOV	BDL	BDL	.	.	.	BDL	.	BDL
DEC	BDL	BDL	.	.	.	BDL	.	BDL

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
135 TRICHLORO BENZENE (NG/L)			DET'N LIMIT = 5.000		GUIDELINE = 10000. (D4)			
MAR	.	.	.	BDL	.	.	.	BDL
APR	.	.	.	BDL	.	.	.	BDL
MAY	BDL	BDL	.	.	.	.	.	BDL
JUN	ISM	ISM	.	BDL	.	.	.	BDL
JUL	BDL	BDL	.	BDL	.	.	.	7.000 <T
AUG	BDL	BDL	.	.	.	.	.	BDL
SEP	BDL	BDL	.	.	.	BDL	.	BDL
	ICS	BDL	.	.	.	BDL	.	BDL
OCT	.	BDL	.	.	.	.	.	.
NOV	BDL	BDL	.	.	.	BDL	.	BDL
DEC	BDL	BDL	.	.	.	BDL	.	BDL
HEXACHLOROETHANE (NG/L)			DET'N LIMIT = 1.000		GUIDELINE = 1900. (D4)			
MAR	.	.	.	12.000	.	.	.	14.000
APR	.	.	.	1.000 <T	.	.	.	BDL
MAY	BDL	BDL	.	.	.	.	.	BDL
JUN	ISM	ISM	.	BDL	.	.	.	BDL
JUL	BDL	BDL	.	BDL	.	.	.	3.000 <T
AUG	BDL	BDL	.	.	.	.	.	BDL
SEP	BDL	BDL	.	.	.	BDL	.	BDL
	ICS	BDL	.	.	.	BDL	.	BDL
OCT	.	BDL	.	.	.	.	.	.
NOV	BDL	BDL	.	.	.	BDL	.	BDL
DEC	BDL	BDL	.	.	.	BDL	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
<hr/>								
PENTACHLOROBENZENE (NG/L)			DET'N LIMIT = 1.000		GUIDELINE = 74000. (D4)			
MAR	.	.	.	BDL	.	.	.	BDL
APR	.	.	.	1.000 <T	.	.	.	BDL
MAY	BDL	BDL	.	.	.	.	.	BDL
JUN	ISM	ISM	.	BDL	.	.	.	BDL
JUL	BDL	BDL	.	BDL	.	.	.	BDL
AUG	BDL	BDL	.	.	.	.	.	BDL
SEP	BDL	BDL	.	.	.	BDL	.	BDL
	ICS	BDL	.	.	.	BDL	.	BDL
OCT	.	BDL	.	.	.	.	.	.
NOV	BDL	BDL	.	.	.	BDL	.	BDL
DEC	BDL	BDL	.	.	.	BDL	.	BDL
<hr/>								
236 TRICHLOROTOLUENE (NG/L)			DET'N LIMIT = 5.000		GUIDELINE = N/A			
MAR	.	.	.	BDL	.	.	.	BDL
APR	.	.	.	56.000	.	.	.	BDL
MAY	BDL	BDL	.	.	.	.	.	BDL
JUN	ISM	ISM	.	BDL	.	.	.	BDL
JUL	BDL	BDL	.	BDL	.	.	.	BDL
AUG	BDL	BDL	.	.	.	BDL	.	BDL
SEP	BDL	BDL	.	.	.	BDL	.	BDL
	ICS	BDL	.	.	.	.	.	.
OCT	.	BDL	.	.	.	BDL	.	BDL
NOV	BDL	BDL	.	.	.	BDL	.	BDL
DEC	BDL	BDL	.	.	.	BDL	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
PESTICIDES & PCB								
ALPHA BHC (NG/L)			DET'N LIMIT = 1.000		GUIDELINE = 700. (G)			
MAR	.	.	.	1.000 <T	.	.	.	1.000 <T
APR	.	.	.	BDL	.	.	.	BDL
MAY	BDL	1.000 <T	.	.	.	.	.	BDL
JUN	ISM	ISM	.	2.000 <T	.	.	.	1.000 <T
JUL	1.000 <T	1.000 <T	.	BDL	.	.	.	3.000 <T
AUG	BDL	BDL	.	.	.	BDL	.	BDL
SEP	BDL	BDL	.	.	.	BDL	.	BDL
	ICS	4.000 <T	.	.	.	.	.	.
OCT	.	BDL	.	.	.	1.000 <T	.	BDL
NOV	1.000 <T	1.000 <T	.	.	.	2.000 <T	.	2.000 <T
DEC	BDL	1.000 <T	.	.	.	BDL	.	2.000 <T
LINDANE (NG/L)								
			DET'N LIMIT = 1.000		GUIDELINE = 4000.0 (A1)			
MAR	.	.	.	1.000 <T	.	.	.	1.000 <T
APR	.	.	.	BDL	.	.	.	BDL
MAY	BDL	BDL	.	.	.	.	.	BDL
JUN	ISM	ISM	.	BDL	.	.	.	BDL
JUL	BDL	3.000 <T	.	BDL	.	.	.	BDL
AUG	BDL	BDL	.	.	.	BDL	.	BDL
SEP	BDL	BDL	.	.	.	BDL	.	BDL
	ICS	3.000 <T	.	.	.	.	.	.
OCT	.	BDL	.	.	.	BDL	.	BDL
NOV	BDL	1.000 <T	.	.	.	BDL	.	2.000 <T
DEC	BDL	BDL	.	.	.	BDL	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
			DET'N LIMIT = 5.000		GUIDELINE =		N/A	
MIREX (NG/L)								
MAR	.	.	.	BDL	.	.	.	BDL
APR	.	.	.	BDL	.	.	.	BDL
MAY	BDL	BDL	.	.	.	.	.	BDL
JUN	ISM	ISM	.	BDL	.	.	.	BDL
JUL	BDL	BDL	.	BDL	.	.	.	BDL
AUG	BDL	BDL	.	.	.	BDL	.	5.000 <T
SEP	BDL	BDL	.	.	.	BDL	.	BDL
	ICS	BDL	.	.	.	.	.	.
OCT	.	BDL	.	.	.	BDL	.	BDL
NOV	BDL	BDL	.	.	.	BDL	.	BDL
DEC	BDL	BDL	.	.	.	BDL	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
<hr/>								
PHENOLICS								
PHENOL (UG/L)			DET'N LIMIT = N/A		GUIDELINE = 2.00 (A3)			
MAY	.200 <T	.200 <T	.	.	.	.	.	.
JUN	.200 <T	.600 <T	.	.	.	.	.	.
JUL	.200 <T	.800 <T	.	.	.	.	.	.
AUG	BDL	BDL	.	.	.	.	.	.
SEP	BDL	BDL	.	.	.	.	.	.
	BDL	.200 <T	.	.	.	.	.	.
OCT	.200 <T	.400 <T	.	.	.	.	.	.
NOV	BDL	.200 <T	.	.	.	.	.	.
DEC	1.200	.200 <T	.	.	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
<hr/>								
VOLATILES								
BENZENE (UG/L)			DET'N LIMIT = 0		GUIDELINE = 5.0 (D1)			
MAR	.	.	.	BDL	.	.	.	BDL
APR	.	.	.	BDL	.	.	.	BDL
MAY	BDL	BDL	.	.	.	.	.	BDL
JUN	BDL	BDL	.	BDL	.	.	.	BDL
JUL	BDL	.000 SPS	.	BDL	.	.	.	BDL
AUG	BDL	BDL	.	.	.	BDL	.	BDL
SEP	BDL	BDL	.	.	.	BDL	.	BDL
	BDL	BDL	.	.	.	.	.	.
OCT	BDL	BDL	.	.	.	BDL	.	BDL
NOV	BDL	BDL	.	.	.	BDL	.	BDL
DEC	BDL	BDL	.	.	.	BDL	.	BDL
<hr/>								
TOLUENE (UG/L)			DET'N LIMIT = 0		GUIDELINE = 100.0 (G)			
MAR	.	.	.	BDL	.	.	.	BDL
APR	.	.	.	BDL	.	.	.	BDL
MAY	BDL	BDL	.	.	.	.	.	BDL
JUN	BDL	BDL	.	BDL	.	.	.	BDL
JUL	BDL	.000 SPS	.	BDL	.	.	.	BDL
AUG	BDL	.200 <T	.	.	.	BDL	.	BDL
SEP	BDL	.200 <T	.	.	.	BDL	.	.000 APS
	BDL	BDL	.	.	.	.	.	.
OCT	BDL	BDL	.	.	.	BDL	.	BDL
NOV	BDL	BDL	.	.	.	.250 <T	.	.100 <T
DEC	BDL	BDL	.	.	.	BDL	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
<hr/>								
ETHYLBENZENE (UG/L)			DET'N LIMIT = 0		GUIDELINE = 3400. (D3)			
MAR	.	.	.	BDL	.	.	.	BDL
APR	.	.	.	BDL	.	.	.	BDL
MAY	BDL	BDL	.	.	.	.	.	BDL
JUN	BDL	BDL	.	BDL	.	.	.	BDL
JUL	BDL	.150 <T	.	BDL	.	.	.	BDL
AUG	BDL	BDL	.	.	.	BDL	.	BDL
SEP	BDL	BDL	.	.	.	BDL	.	BDL
	BDL	BDL	.	.	.	.	.	BDL
OCT	BDL	BDL	.	.	.	BDL	.	BDL
NOV	BDL	BDL	.	.	.	BDL	.	BDL
DEC	BDL	BDL	.	.	.	BDL	.	BDL
<hr/>								
P-XYLENE (UG/L)			DET'N LIMIT = 0		GUIDELINE = 620. (G)			
MAR	.	.	.	BDL	.	.	.	BDL
APR	.	.	.	BDL	.	.	.	BDL
MAY	BDL	.000 RMP	.	.	.	.	.	.000 RMP
JUN	BDL	BDL	.	BDL	.	.	.	BDL
JUL	BDL	BDL	.	BDL	.	.	.	BDL
AUG	BDL	BDL	.	.	.	BDL	.	BDL
SEP	BDL	BDL	.	.	.	BDL	.	BDL
	BDL	BDL	.	.	.	.	.	BDL
OCT	BDL	BDL	.	.	.	BDL	.	BDL
NOV	BDL	BDL	.	.	.	BDL	.	BDL
DEC	BDL	BDL	.	.	.	BDL	.	BDL
<hr/>								

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT				DISTRIBUTION SYSTEM				
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW

1,1 DICHLOROETHYLENE (UG/L)			DET'N LIMIT = 0		GUIDELINE = 7.0 (D1)			
MAR	.	.	.	.000 APS	.	.	.	.000 APS
APR	.	.	.	BDL	.	.	.	BDL
MAY	BDL	BDL	.	.	.	.	.	BDL
JUN	BDL	.000 SPS	.	.000 SPS	.	.	.	BDL
JUL	BDL	.000 SPS	.	BDL	.	.	.	.
AUG	BDL	.000 SPS	.	.	.	BDL	.	BDL
SEP	BDL	BDL	.	.	.	BDL	.	BDL
	BDL	.000 SPS	.	.	.	.	.	.
OCT	BDL	BDL	.	.	.	BDL	.	BDL
NOV	BDL	BDL	.	.	.	BDL	.	BDL
DEC	BDL	BDL	.	.	.	.000 SPS	.	BDL

DICHLOROMETHANE (UG/L)			DET'N LIMIT = 0		GUIDELINE = 1750. (D3)			
MAR	.	.	.	BDL	.	.	.	BDL
APR	.	.	.	BDL	.	.	.	BDL
MAY	BDL	BDL	.	.	.	.	.	BDL
JUN	BDL	BDL	.	BDL	.	.	.	BDL
JUL	BDL	.000 SPS	.	BDL	.	.	.	.
AUG	BDL	BDL	.	.	.	BDL	.	BDL
SEP	BDL	BDL	.	.	.	BDL	.	BDL
	BDL	BDL	.	.	.	.	.	.
OCT	BDL	BDL	.	.	.	BDL	.	BDL
NOV	BDL	BDL	.	.	.	BDL	.	BDL
DEC	2.500 UCS	1.000 UCS	.	.	.	BDL	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE	RAW	TREATED	SITE 1	SITE 2		SITE 3		
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
<hr/>								
T1,2DICHLOROETHYLENE (UG/L)			DET'N LIMIT = 0		GUIDELINE = 350. (D3)			
MAR	.	.	.	BDL	.	.	.	BDL
APR	.	.	.	BDL	.	.	.	BDL
MAY	BDL	BDL	.	.	.	.	.	BDL
JUN	BDL	BDL	.	.	.	.	.	BDL
JUL	BDL	.000 SPS	.	BDL	.	.	.	BDL
AUG	BDL	BDL	.	.	.	.	.	.
SEP	BDL	BDL	.	.	.	BDL	.	BDL
	BDL	BDL	.	.	.	BDL	.	BDL
OCT	BDL	BDL	.	.	.	.	.	.
NOV	BDL	BDL	.	.	.	BDL	.	BDL
DEC	BDL	BDL	.	.	.	BDL	.	BDL
			.	.	.	BDL	.	BDL
<hr/>								
1,1 DICHLOROETHANE (UG/L)			DET'N LIMIT = 0		GUIDELINE = N/A			
MAR	.	.	.	BDL	.	.	.	BDL
APR	.	.	.	BDL	.	.	.	BDL
MAY	BDL	BDL	.	.	.	.	.	BDL
JUN	BDL	BDL	.	.	.	.	.	BDL
JUL	BDL	.000 SPS	.	BDL	.	.	.	BDL
AUG	BDL	BDL	.	.	.	.	.	.
SEP	BDL	BDL	.	.	.	BDL	.	BDL
	BDL	BDL	.	.	.	BDL	.	BDL
OCT	BDL	BDL	.	.	.	.	.	.
NOV	BDL	BDL	.	.	.	BDL	.	BDL
DEC	BDL	BDL	.	.	.	BDL	.	BDL
			.	.	.	BDL	.	BDL

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
CHLOROFORM (UG/L)								
			DET'N LIMIT = 0		GUIDELINE = 350.0 (A1+)			
MAR	.	.	.	120.000	.	.	.	100.000
APR	.	.	.	126.000	.	.	.	103.000
MAY	1.000 <T	132.000	.	.	.	.	.	111.000
JUN	1.500	154.000	.	142.000	.	.	.	133.000
JUL	.600 <T	194.000	.	200.000	.	.	.	.
AUG	BDL	160.000	.	.	.	160.000	.	170.000
SEP	1.500	120.000	.	.	.	100.000	.	110.000
	.500 <T	124.000	.	.	.	.	.	.
OCT	1.100	120.000	.	.	.	85.000	.	100.000
NOV	.300 <T	100.000	.	.	.	80.000	.	70.000
DEC	.100 UCS	104.400	.	.	.	55.000	.	60.000
111, TRICHLOROETHANE (UG/L)								
			DET'N LIMIT = 0		GUIDELINE = 200. (D1)			
MAR	.	.	.	BDL	.	.	.	BDL
APR	.	.	.	BDL	.	.	.	BDL
MAY	BDL	BDL	.	.	.	.	.	BDL
JUN	BDL	BDL	.	BDL	.	.	.	BDL
JUL	BDL	.000 SPS	.	BDL	.	.	.	.
AUG	BDL	BDL	.	.	.	BDL	.	BDL
SEP	BDL	BDL	.	.	.	BDL	.	BDL
	BDL	BDL	.	.	.	.	.	.
OCT	BDL	BDL	.	.	.	BDL	.	BDL
NOV	BDL	BDL	.	.	.	BDL	.	BDL
DEC	BDL	BDL	.	.	.	BDL	.	BDL

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT				DISTRIBUTION SYSTEM				
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
<hr/>								
1,2 DICHLOROETHANE (UG/L)			DET'N LIMIT = 0		GUIDELINE = 5.0 (D1)			
MAR	.	.	.	BDL	.	.	.	BDL
APR	.	.	.	BDL	.	.	.	BDL
MAY	BDL	BDL	.	.	.	.	.	BDL
JUN	BDL	BDL	.	BDL	.	.	.	BDL
JUL	BDL	.000 SPS	.	BDL	.	.	.	BDL
AUG	BDL	BDL	.	.	.	.	.	.
SEP	BDL	BDL	.	.	.	BDL	.	BDL
	BDL	BDL	.	.	.	BDL	.	BDL
OCT	BDL	BDL	.	.	.	.	.	.
NOV	BDL	BDL	.	.	.	BDL	.	BDL
DEC	BDL	BDL	.	.	.	BDL	.	BDL
<hr/>								
CARBON TETRACHLORIDE (UG/L)			DET'N LIMIT = 0		GUIDELINE = 5.0 (D1)			
MAR	.	.	.	BDL	.	.	.	BDL
APR	.	.	.	BDL	.	.	.	BDL
MAY	BDL	BDL	.	.	.	.	.	BDL
JUN	BDL	BDL	.	BDL	.	.	.	BDL
JUL	BDL	.000 SPS	.	BDL	.	.	.	BDL
AUG	BDL	BDL	.	.	.	BDL	.	BDL
SEP	BDL	BDL	.	.	.	BDL	.	BDL
	BDL	BDL	.	.	.	.	.	.
OCT	BDL	BDL	.	.	.	BDL	.	BDL
NOV	BDL	BDL	.	.	.	BDL	.	BDL
DEC	BDL	BDL	.	.	.	BDL	.	BDL
<hr/>								

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT				DISTRIBUTION SYSTEM				
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW

1,2 DICHLOROPROPANE (UG/L)			DET'N LIMIT = 0		GUIDELINE = 10.0 (G)			
MAR	.	.	.	BDL	.	.	.	BDL
APR	.	.	.	BDL	.	.	.	BDL
MAY	BDL	BDL	.	.	.	.	.	BDL
JUN	BDL	BDL	.	BDL	.	.	.	BDL
JUL	BDL	.000 SPS	.	BDL	.	.	.	BDL
AUG	BDL	BDL	.	.	.	.	.	.
SEP	BDL	BDL	.	.	.	BDL	.	BDL
	BDL	BDL	.	.	.	BDL	.	BDL
OCT	BDL	BDL	.	.	.	.	.	.
NOV	BDL	BDL	.	.	.	BDL	.	BDL
DEC	BDL	BDL	.	.	.	BDL	.	BDL

TRICHLOROETHYLENE (UG/L)			DET'N LIMIT = 0		GUIDELINE = 5.0 (D1)			
MAR	.	.	.	BDL	.	.	.	BDL
APR	.	.	.	BDL	.	.	.	BDL
MAY	BDL	BDL	.	.	.	.	.	BDL
JUN	BDL	BDL	.	BDL	.	.	.	BDL
JUL	BDL	.000 SPS	.	BDL	.	.	.	BDL
AUG	BDL	BDL	.	.	.	BDL	.	BDL
SEP	BDL	BDL	.	.	.	BDL	.	BDL
	BDL	BDL	.	.	.	.	.	.
OCT	BDL	BDL	.	.	.	BDL	.	BDL
NOV	BDL	BDL	.	.	.	BDL	.	BDL
DEC	BDL	BDL	.	.	.	BDL	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
DICHLOROBROMOMETHANE (UG/L)			DET'N LIMIT = 0		GUIDELINE = 350.0 (A1+)			
MAR	.	.	.	8.000	.	.	.	7.000
APR	.	.	.	6.000	.	.	.	5.000
MAY	BDL	6.000	.	.	.	.	.	6.000
JUN	BDL	8.600	.	8.200	.	.	.	7.900
JUL	BDL	10.000	.	10.000	.	.	.	.
AUG	BDL	12.600 APS	.	.	.	10.600 APS	.	10.900 APS
SEP	BDL	12.600 APS	.	.	.	10.100	.	10.900 APS
	BDL	14.100	.	.	.	.	.	.
OCT	BDL	11.100	.	.	.	8.200	.	10.200
NOV	BDL	10.100	.	.	.	8.000	.	8.500
DEC	BDL	8.700	.	.	.	5.800	.	6.500
112 TRICHLOROETHANE (UG/L)			DET'N LIMIT = 0		GUIDELINE = .60 (D4)			
MAR	.	.	.	BDL	.	.	.	BDL
APR	.	.	.	BDL	.	.	.	BDL
MAY	BDL	BDL	.	.	.	.	.	BDL
JUN	BDL	BDL	.	BDL	.	.	.	BDL
JUL	BDL	.000 SPS	.	BDL	.	.	.	BDL
AUG	BDL	BDL	.	.	.	.	.	.
SEP	BDL	BDL	.	.	.	BDL	.	BDL
	BDL	BDL	.	.	.	BDL	.	BDL
OCT	BDL	BDL	.	.	.	.	.	.
NOV	BDL	BDL	.	.	.	BDL	.	BDL
DEC	BDL	BDL	.	.	.	BDL	.	BDL
						BDL	.	BDL

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
			CHLORODIBROMOMETHANE (UG/L)		DET'N LIMIT = 0		GUIDELINE = 350.0 (A1+)	
MAR	.	.	.	BDL	.	.	.	BDL
APR	.	.	.	BDL	.	.	.	BDL
MAY	BDL	BDL	.	.	.	.	.	BDL
JUN	BDL	.200 <T	.	.200 <T	.	.	.	.300 <T
JUL	BDL	.300 <T	.	.200 <T	.	.	.	.
AUG	BDL	.500 <T	.	.	.	.400 <T	.	.400 <T
SEP	BDL	.500 <T	.	.	.	.400 <T	.	BDL
	BDL	.500 <T	.	.	.	.	.	.
OCT	BDL	.500 <T	.	.	.	.400 <T	.	.500 <T
NOV	BDL	.400 <T	.	.	.	BDL	.	.400 <T
DEC	BDL	BDL	.	.	.	BDL	.	BDL
T-CHLOROETHYLENE (UG/L)			DET'N LIMIT = 0		GUIDELINE = 10.0 (C2)			
MAR	.	.	.	BDL	.	.	.	BDL
APR	.	.	.	BDL	.	.	.	BDL
MAY	BDL	BDL	.	.	.	.	.	BDL
JUN	BDL	BDL	.	BDL	.	.	.	BDL
JUL	BDL	.000 SPS	.	BDL	.	.	.	.
AUG	BDL	BDL	.	.	.	BDL	.	BDL
SEP	BDL	BDL	.	.	.	BDL	.	BDL
	BDL	BDL	.	.	.	.	.	.
OCT	BDL	BDL	.	.	.	BDL	.	BDL
NOV	BDL	BDL	.	.	.	BDL	.	BDL
DEC	BDL	BDL	.	.	.	BDL	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		SITE 3	
			STANDING	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
TOTL TRIHALOMETHANES (UG/L)			DET'N LIMIT = 0		GUIDELINE = 350.0 (A1)			
MAR	.	.	.	128.000	.	.	.	107.000
APR	.	.	.	132.000	.	.	.	108.000
MAY	1.000 <T	139.000	.	.	.	.	.	117.000
JUN	1.500	162.800	.	150.400	.	.	.	141.200
JUL	.600	204.300	.	210.200	.	.	.	.
AUG	BDL	173.100	.	.	.	171.000	.	181.300
SEP	1.500	133.100	.	.	.	110.500	.	120.900
	.500	138.600	.	.	.	.	.	.
OCT	1.100	131.600	.	.	.	93.600	.	110.700
NOV	.300	110.500	.	.	.	88.000	.	78.900
DEC	.100 UCS	113.100	.	.	.	60.800	.	66.500

TABLE 6

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

COUNT OF PARAMETERS NOT FOUND ABOVE THE DETECTION LIMIT

SCAN ----	PARAMETER -----	ANALYSED -----	DETECTION LIMIT -----	GUIDELINE -----
CHEMISTRY (LAB)	CYANIDE	37	0.001	.200 (A1) MG/L
METALS	BERYLLIUM	56	0.001	.0002 (H) MG/L
	CYANIDE	37	0.001	.200 (A1) MG/L
	SELENIUM	56	0.001	.010 (A1) MG/L
CHLOROAROMATICS	HEXACHLOROBUTADIENE	36	1.000	450. (D4) NG/L
	1235 T-CHLOROBENZENE	36	1.000	10000. (I) NG/L
	124 TRICHLOROBENZENE	36	5.000	10000. (I) NG/L
	1245 T-CHLOROBENZENE	36	1.000	38000. (D4) NG/L
	OCTACHLOROSTYRENE	36	1.000	N/A NG/L
	245 TRICHLOROTOLUENE	36	5.000	N/A NG/L
	26A TRICHLOROTOLUENE	36	5.000	N/A NG/L
CHLOROPHENOLS	234 TRICHLOROPHENOL	4	50.	N/A NG/L
	2345 T-CHLOROPHENOL	4	50.	N/A NG/L
	2356 T-CHLOROPHENOL	4	50.	N/A NG/L
	245-TRICHLOROPHENOL	4	50.	2600000(D4) NG/L
	246-TRICHLOROPHENOL	4	50.	10000. (C1) NG/L
	PENTACHLOROPHENOL	4	50.	10000. (C1) NG/L
PESTICIDES & PCB	ALDRIN	36	1.000	700.0 (A1) NG/L
	BETA BHC	36	1.000	300. (G) NG/L
	ALPHA CHLORDANE	36	2.000	7000.0 (A1) NG/L
	GAMMA CHLORDANE	36	2.000	7000.0 (A1) NG/L
	DIELDRIN	36	2.000	700.0 (A1) NG/L
	METHOXYCHLOR	36	5.000	100000. (A1) NG/L
	THIODAN I	36	2.000	74000. (D4) NG/L
	THIODAN II	36	4.000	74000. (D4) NG/L
	ENDRIN	36	4.000	200.0 (A1) NG/L
	THIODAN SULPHATE	36	4.000	N/A NG/L
	HEPTACHLOR EPOXIDE	36	1.000	3000.0 (A1) NG/L
	HEPTACHLOR	36	1.000	3000.0 (A1) NG/L
	OXYCHLORDANE	36	2.000	N/A NG/L
	OPDDT	36	5.000	30000. (A1) NG/L
	PCB	36	20.000	3000. (A2) NG/L
	PP-DDD	36	5.000	N/A NG/L
	PPDDE	36	1.000	30000. (A1) NG/L
	PPDDT	36	5.000	30000. (A1) NG/L
	ATRATONE	37	50.	N/A NG/L
	ALACHLOR	37	500.	35000. (D2) NG/L
	ETHYLENE DIBROMIDE	36	0	50.0 (G) UG/L
	HCB	36	1.000	10.0 (C1) NG/L
POLYAROMATIC HYDROC	PHENANTHRENE	10	0	N/A NG/L
	ANTHRACENE	10	0	N/A NG/L
	FLUORANTHENE	10	0	42000 (D4) NG/L
	PYRENE	10	0	N/A NG/L
	BENZO(A)ANTHRACENE	10	0	N/A NG/L
	CHRYSENE	10	0	N/A NG/L
	DIMETH. BENZ(A)ANTHR	10	0	N/A NG/L
	BENZO(E)PYRENE	10	0	N/A NG/L

TABLE 6

DRINKING WATER SURVEILLANCE PROGRAM BELLEVILLE W.T.P. 1987

COUNT OF PARAMETERS NOT FOUND ABOVE THE DETECTION LIMIT

SCAN	PARAMETER	ANALYSED	DETECTION LIMIT	GUIDELINE	
POLYAROMATIC HYDROC	BENZO(J) FLUORANTHEN	10	N/A	N/A	NG/L
	BENZO(B) FLUORANTHEN	10	0	N/A	NG/L
	PERYLENE	10	0	N/A	NG/L
	BENZO(K) FLUORANTHEN	10	N/A	N/A	NG/L
	BENZO (A) PYRENE	10	0	10	(B1) NG/L
	BENZO(G,H,I) PERYLEN	10	0	N/A	NG/L
	DIBENZO(A,H) ANTHRAC	10	0	N/A	NG/L
	INDENO(1,2,3-C,D) PY	10	0	N/A	NG/L
	BENZO(B) CHRYSENE	10	0	N/A	NG/L
	ANTHANTHRENE	10	N/A	N/A	NG/L
	CORONENE	10	0	N/A	NG/L
SPECIFIC PESTICIDES	TOXAPHENE	36	N/A	5000. (A1)	NG/L
	AMETRYNE	37	50.00	300000. (D3)	NG/L
	ATRAZINE	37	50.00	60000. (B3)	NG/L
	BLADEx	37	100.00	10000. (B3)	NG/L
	PROMETONE	37	50.00	52500. (D3)	NG/L
	PROPAZINE	37	50.00	16000. (D2)	NG/L
	PROMETRYNE	37	50.00	1000. (B3)	NG/L
	SENCOR	37	100.00	80000. (B2)	NG/L
	SIMAZINE	37	50.00	10000. (B3)	NG/L
	2,4,5-T	4	50.00	35000. (D2)	NG/L
	2,4-D	4	100.00	100000. (A1)	NG/L
	24DCHLRPHENOXYBUTYRC	4	200.00	18000. (B3)	NG/L
	2,4-DP	4	100.00	N/A	NG/L
	DICAMBA	4	100.00	87000. (B3)	NG/L
	PICHLORAM	4	100.00	2450000. (D3)	NG/L
	SILVEX	4	50.00	10000. (A1)	NG/L
	DIAZINON	4	20.	14000. (A1)	NG/L
	DICHLOROVOS	4	20.	N/A	NG/L
	DURSBAN	4	20.	N/A	NG/L
	ETHION	4	20.	35000. (G)	NG/L
	GUTHION	4	N/A	N/A	NG/L
	MALATHION	4	20.	160000. (G)	NG/L
	MEVINPHOS	4	20.	N/A	NG/L
	METHYL PARATHION	4	50.	7000. (B3)	NG/L
	METHYLTRITHION	4	20.	N/A	NG/L
	PARATHION	4	20.	35000. (B1)	NG/L
	PHORATE	4	20.	35.0 (D2)	NG/L
	RELDAN	4	20.	N/A	NG/L
	RONNEL	4	20.	N/A	NG/L
	AMINOCARB	4	N/A	N/A	NG/L
	BENOMYL	4	N/A	N/A	NG/L
	BUX	4	2000.	N/A	NG/L
	CARBOFURAN	4	2000.	18000. (D3)	NG/L
	CIPC	4	2000.	350000. (G)	NG/L
	DIALATE	4	2000.	30000. (H)	NG/L
	EPTAM	4	2000.	N/A	NG/L
	IPC	4	2000.	N/A	NG/L
	PROPOXUR	4	2000.	90000. (G)	NG/L
	SEVIN	4	200.	70000. (A1)	NG/L
	SUTAN	4	2000.	245000. (D3)	NG/L
	METOLACHLOR	37	500.	50000. (B3)	NG/L

Appendix A

DRINKING WATER SURVEILLANCE PROGRAM

The Drinking Water Surveillance Program (DWSP) for Ontario monitors drinking water quality at municipal water supply systems. The DWSP Database Management System provides a computerized drinking water quality information system for the supplies monitored. The objectives of the program are to provide:

- immediate, reliable, current information on drinking water quality,
- a flagging mechanism for 'Objective' exceedence,
- a definition of contaminant levels and trends,
- a comprehensive background for remedial action,
- a framework for assessment of new contaminants,
- and an indication of treatment efficiency of plant processes.

Program

The DWSP officially began in April 1986 and is designed to eventually include all municipal water supplies in Ontario; currently 44 plants are being monitored. Water supply locations have been prioritized for surveillance, based primarily on criteria such as population density, probability of contamination and geographical location.

An ongoing assessment of future monitoring requirements at each location will be made. Monitoring will continue at the initial locations at an appropriate level and further locations will be phased into the program as resources permit. It is estimated that after 4 years of operation, the program will be monitoring 90 locations.

A major goal of the program is to collect valid water quality data, in context with plant operational characteristics at the time of sampling. As soon as sufficient data have been accumulated and analysed, both the frequency of sampling and the range of parameters may be adjusted accordingly.

Assessments are carried out at all locations prior to initial sampling in order to acquire complete plant process and distribution system details, and to designate (and retrofit if necessary) all sampling systems and locations. This ensures that the sampled water is a reflection of the water itself.

Samples are taken of the raw (ambient water) and the treated water at the treatment plant, and of consumer's tap water in the distribution system. In order to determine possible effects of distribution on water quality, both standing and free flow water in old and new sections of the distribution system are sampled.

Sampling is carried out by operational personnel who have been trained in the applicable procedures.

Comprehensive standardized procedures and Field Test kits are supplied to sampling personnel. This ensures that samples are taken and handled according to standard protocols and that field testing will supply reliable data. All field and laboratory analyses are carried out using "approved documented procedures". All laboratory analyses are carried out by the MOE Laboratory Services Branch.

Data Reporting Mechanism

When the analytical results are transferred from the MOE laboratory into the DWSP system, printouts of the completed analyses are sent to the MOE District Officer, the appropriate operational staff and are also retained by the DWSP co-ordinator.

DWSP INPUTS AND OUTPUTS

The DWSP INPUTS and OUTPUTS are illustrated in Fig. 1.

PROGRAM INPUTS

PLANT AND DISTRIBUTION SYSTEM DESCRIPTION

The system description includes plant specific non-analytical information acquired through a questionnaire and initial plant visit. During the initial assessment of the plant and distribution system the questionnaire content is verified and

missing information added. It is intended that all data be kept current with scheduled annual updates.

The PLANT and DISTRIBUTION SYSTEM DESCRIPTION consists of the following seven components.

1. Process component inventory

All physical and chemical processes that the water is subjected to, from the intake pipe to the consumers' tap (where possible), are documented. These include: process type, general description of physical structures, material types, sizes, and retention time for each process within the plant. The processes may be as simple as transmission or as complex as carbon adsorption.

2. Treatment chemicals

Chemicals used in the treatment processes, their function, application point, supplier and brand-name are recorded. The chemical dosages applied on the day of sampling are recorded in DWSP.

3. Process control measurements

Documentation of in-plant monitoring of process parameters (turbidity, chlorine residuals, pH, aluminum residuals) including methods used, monitoring locations and frequency is contained in this section. In-plant monitoring results are generally not retained in DWSP but are retained by the Water Treatment Plant.

4. Design flow and retention time

The hydraulic capacity, designed and actual, is noted here. Retention time (the time that a block of water is retained in the plant) is also noted. The maximum, minimum and average flow as well as a record of the flow rate on the day of sampling are recorded in DWSP.

5. Distribution system description

This area includes the storage and transmission characteristics of the distribution system after the water leaves the plant.

6. Sampling system

Each plant is assessed for its adequacy in terms of sampling of bacteriological, organic and inorganic parameters. The prime considerations in the assessment and design of the sampling system are:

- i/ the sample is an accurate representation of the actual water condition, eg. raw water has had no chemical treatment;
- ii/ the water being sampled is not being modified by the sampling system;
- iii/ the sample tap must be in a clean area of the plant, preferably a lab area;
- iv/ the sample lines must be organically inert (no plastic, ideally stainless steel).

It is imperative that the sampled water be a reflection not of the sampling system but of the water itself.

The sampling system documentation includes: origin of the water; date sampling was initiated; size, length and material type (intake, discharge and tap), pump characteristics (model, type, capacity) and flow rate.

7. People

This section contains the names, addresses and phone numbers of current plant management and operational staff, distribution system management and operational staff, Medical Officer of Health and appropriate Ministry of Environment personnel associated with the plant.

FIELD DATA

The second major input to DWSP is field data.

Field data is collected at the plant and from the distribution system sites on the day of sampling. The field data consists of general operating conditions and the results of testing for field parameters. General operating conditions include chemicals used, dosages, flow and retention time on the day of sampling as well as monthly maximum, minimum and average flows. Field parameters include turbidity, chlorine residuals (free, combined and total), temperature and pH. These parameters are analysed according to standardized DWSP protocols to allow for interplant comparison.

LABORATORY ANALYTICAL DATA

The third major input to DWSP is Laboratory Analytical Data.

Samples gathered from the raw, treated and distribution sampling sites are analyzed for approximately 160 parameters at a frequency of two to twelve times per year. Sixty-five percent of the parameters are organic. The parameters measured may have health or aesthetic implications when present in drinking water. Many of the parameters may be used in the treatment process or may be treatment by-products. Due to the nature of certain analytical instruments parameters may be measured for in a "scan" producing some results for parameters that are not on the DWSP priority list but which may be of interest. The majority of the parameters are measured on a routine basis however, those that are technically more difficult and/or costly to analyse for are done less frequently. These include Specific Pesticides and Chlorophenols.

Although the parameter list is extensive, additional parameters with the potential to cause health or aesthetic related problems may be added provided reliable analytical and sampling methods exist.

All laboratory generated data is derived from standardized, documented analytical protocols. The analytical method is an integral part of the data and as methods change notation will be made and intercomparison data documented.

PARAMETER REFERENCE INFORMATION

The fourth major input to DWSP is Parameter Reference Information

This is a catalogue of information for each substance analysed on DWSP. It includes parameter name and aliases, physical and chemical properties, basic toxicology, world-wide health limits, treatment methods and uses. The Parameter Reference Information is computerized and can be accessed through the Query function of the DWSP database.

An example is shown in fig. 2.

A written copy (hard version) of the Parameter Reference Information will be available in the near future and is a new and sophisticated enhancement to the DWSP.

PROGRAM OUTPUTS

There are four major program outputs, Query, Action Alert, Report Generation and the Annual Report.

QUERY

All DWSP information is easily accessed through the Query function, therefore anything from addresses of plant personnel to complete water quality information for a plant's water supply is instantly available. The DWSP computer system makes relatively complex inquiries manageable. A personal password allowing access into the DWSP query mode in all MOE offices is being developed by the DWSP group.

ACTION ALERTS

Drinking Water quality in Ontario is evaluated against provincial objectives as outlined in the publication, Ontario Drinking Water Objectives (ISBN 0-7729-2725-1 revised 1983). This publication contains health-related Maximum Acceptable Concentrations for thirty substances. Should the reported level of a substance in treated water exceed the Ontario Drinking Water Objective an "Action Alert" requiring resampling and confirmation is issued. This assures that operational staff, health authorities and the public are notified as soon as possible of confirmation of an exceedance and remedial action taken. This report supplies a history of the occurrence of past exceedences at the plant plus a historical summary on the parameter of concern.

In the absence of Ontario Drinking Water Objectives, other agency guidelines which are documented in the Parameter Reference Information may be used. If these guidelines are exceeded the results are flagged and evaluated by DWSP personnel. An "Action Alert" will be issued if warranted.

REPORT GENERATION

Custom reports can be generated from DWSP to meet the needs of the regions and to respond to public requests.

ANNUAL REPORTS

It is the practice of DWSP to produce an annual report containing analytical data along with companion plant information.

FIG. 1

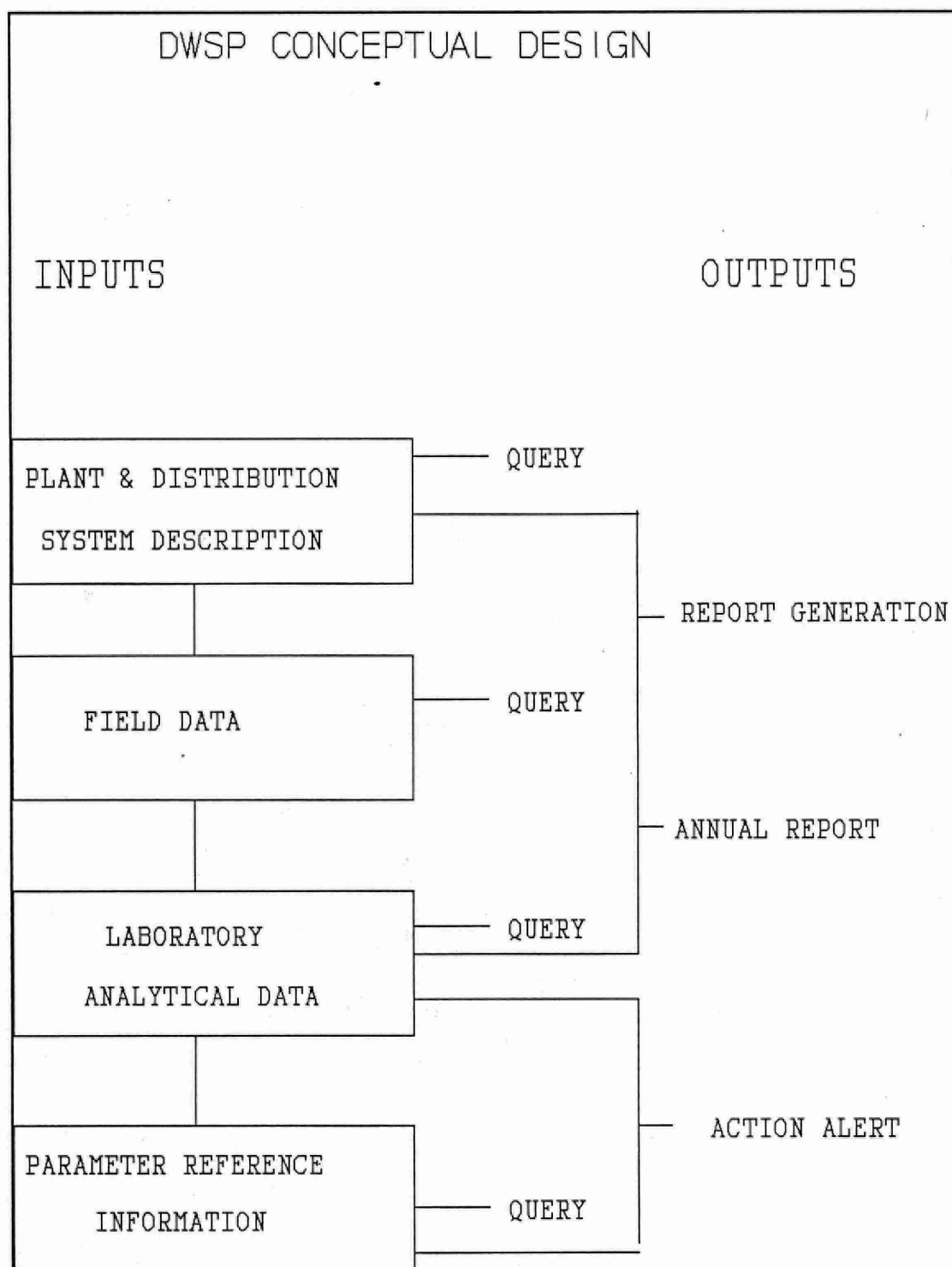


FIG.2

MOE - DRINKING WATER ASSESSMENT PROGRAM (DWSP)

(B2001P)
REFERENCE
BENZENE

PARAMETER

SOURCE	FROM	TO	METHOD	TARG	UNIT	NOTE
EPA	C 86/04		NOMETH	.00	063000 UG/L	RMCL
EPAA	C 80/11		NOMETH	6.60	063000 UG/L	
FERC	C 84/05		NOMETH	1.00	063000 UG/L	
WHO	C 84/01		NOMETH	10.00	064000 UG/L	

DESCRIPTION: NAME: BENZENE

CAS#: 71432

MOLECULAR FORMULAE: C_6H_6

DETECTION LIMIT: (FOR METHOD POCODO) 0.05 UG/L

SYNONYMS: BENZOLE, COAL NAPHTHA, CARBON OIL (27),
CYCLOHEXATRIENE (41)CHARACTERISTICS: COLOURLESS TO LIGHT YELLOW, MOBILE,
NON-POLAR LIQUID, OF HIGHLY REFRACTIVE NATURE,
AROMATIC, VAPOURS BURN WITH SMOKING FLAME (30)

PROPERTIES:

SOLUBILITY IN WATER: 1780-1800 MG/L AT 25 DEG C (41)

THRESHOLD ODOUR: NO DATA

THRESHOLD TASTE: 0.5 MG/L IN WATER (39)

ENVIRONMENTAL FATE: MAY BIOACCUMULATE IN LIVING
ORGANISMS, APPEARS TO BIOACCUMULATE IN ANIMALTISSUES THAT EXHIBIT HIGH LIPID CONTENT OR ARE
MAJOR METABOLIC SITES (LIVER, BRAIN), SMALL
QUANTITIES EVAPORATE FROM SOIL OR DEGRADE QUICKLYSOURCES: PETROLEUM REFINING, SOLVENT RECOVERY, COAL
TAR DISTILLATION, FOOD PROCESSING, TANNING.USES: PREPARATION OF ETHYL BENZENE USED AS A STYRENE
MONOMER, DETERGENTS, NYLON, AS INTERMEDIATE INPESTICIDE PRODUCTION, SOLVENT IN RUBBER INDUSTRY,
DEGREASING AND CLEANSING AGENT, GASOLINE.TOXICITY: RATING 4 (VERY TOXIC); ACUTE - IRRITATES
MUCOUS MEMBRANES, SYMPTOMS INCLUDE RESTLESSNESS,
CONVULSIONS, DEPRESSION, RESPIRATORY FAILURE;

CHRONIC - ANEMIA AND LEUKEMIA (45).

CARINOGENICITY: HUMAN CARCINOGEN AND MUTAGEN

REMOVAL: GAC ADSORPTION, PRECIPITATION WITH ALUM
FOLLOWED BY SEDIMENTATION, COAGULATION AND
FLOCCULATION, SOLVENT EXTRACTION, OXIDATION (41).

MOLECULAR WEIGHT: 78.12 GRAMS

MELTING POINT: 5.5 DEGREES C (27)

BOILING POINT: 80.1 DEGREES C (27)

SPECIFIC GRAVITY: 0.879 AT 20 DEGREES C (27)

VAPOUR PRESSURE: 100 MM AT 26.1 DEGREES C

HENRY'S LAW CONSTANT: 0.00555 ATM M_3 /MOLELOG OCT./WATER PAR. COEFF: $K=1.0$ $1/N=1.6$ $R=.97$ $PH=5.3$

Appendix B

DWSP SAMPLING GUIDELINE

i) RAW and TREATED at PLANT

General Chemistry	<ul style="list-style-type: none">-500 mL clear plastic bottle-rinse bottle with sample three times and discard water-fill to line
Bacti	<ul style="list-style-type: none">-250 mL clear glass bottle with white seal on cap-do <u>not</u> rinse bottle; preservative has been added-avoid touching bottle neck or inside of cap-fill to top of red label as marked
Metals	<ul style="list-style-type: none">-500 mL clear plastic bottle with white lid-rinse bottle and cap three times, discard-fill to line-add 10 drops nitric acid (Caution: HNO_3 is corrosive)
Volatiles (OPOPUP)	<ul style="list-style-type: none">-250 mL clear glass bottle-do <u>not</u> rinse bottle-tilt bottle when filling-fill bottle completely; there should be no air bubbles.
Organic (OWOC), (OWTRI), (OAPAHX)	<ul style="list-style-type: none">-1 liter brown glass bottle per scan-do <u>not</u> rinse bottle-fill to approx. 1" from top-when 'special pesticides' are requested three extra bottles per sample must be submitted
Cyanide	<ul style="list-style-type: none">-500 mL clear plastic bottle-do <u>not</u> rinse bottle-fill to approx. 1" from top-add 10 drops sodium hydroxide (Caution: NaOH is corrosive)

Mercury

- 250 mL clear glass bottle
- rinse bottle and cap three times, discard then fill to top of label
- add 20 drops each nitric acid and potassium dichromate
- (Caution: HNO_3 and KCrO_7 corrosive)

Phenols

- 250 mL clear glass bottle
- do not rinse bottle
- fill to top of label as marked

Steps

1. Let cold water tap run for several minutes.
2. Record time in submission sheet.
3. Record temperature on submission sheet.
4. Fill up all bottles as per instructions.
5. Record chlorine residuals (free, combined and total for treated water only), turbidity and pH on submission sheet.

ii) Distribution Samples (standing water)

General Chemistry

- 500 mL clear plastic bottle
- rinse bottle with sample three times and discard
- fill to line

Metals

- 500 mL clear plastic bottle with white lid
- rinse bottle and cap three times, discard
- fill to line
- add 10 drops nitric acid
(Caution: HNO_3 is corrosive)

Steps:

1. Record time on submission sheet.
2. Place bucket under tap and open cold water.
3. Fill to predetermined volume.
4. After mixing the water, record the temperature on the submission sheet.
5. Fill general chemistry and metals bottles.
6. Record chlorine residuals (free, combined and total), turbidity and pH on submission sheet.

iii) Distribution Samples (free flow)

General Chemistry	<ul style="list-style-type: none">-500 mL clear plastic bottle-rinse bottle with sample three times and discard water-fill to line
Bacteri	<ul style="list-style-type: none">-250 mL clear glass bottle with white seal on cap-do <u>not</u> rinse bottle; preservative has been added-avoid touching bottle neck or inside of cap-fill to top of red label as marked
Metals	<ul style="list-style-type: none">-500 mL clear plastic bottle with white lid-rinse bottle and cap three times, discard-fill to line-add 10 drops nitric acid (Caution: HNO_3 is corrosive)
Volatiles (OPOPUP)	<ul style="list-style-type: none">-250 mL clear glass bottle-do <u>not</u> rinse bottle; preservative has been added-tilt bottle when filling-fill bottle completely; there should be no air bubbles
Organic (OWOC), (OWTRI)	<ul style="list-style-type: none">-1 liter brown glass bottle per scan-do <u>not</u> rinse bottle: preservative has been added-fill to approx. 1" from top
Cyanide	<ul style="list-style-type: none">-500 mL clear plastic bottle-do <u>not</u> rinse bottle: preservative has been added-fill to approx. 1" from top-add 10 drops sodium hydroxide (Caution: NaOH is corrosive)
Mercury	<ul style="list-style-type: none">-250 mL clear glass bottle-rinse bottle and cap three times, discard then fill to top of label-add 20 drops each nitric acid and potassium dichromate (Caution: HNO_3 and KCrO_7 corrosive)

Steps:

1. Record time on submission sheet.
2. Let cold water flow for ten minutes.
3. Record temperature on submission sheet.
4. Fill all bottles as per instructions.
5. Record chlorine residuals (free, combined and total), turbidity and pH on submission sheet.



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